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ABSTRACT

Interviews with approximately 300 Stanford University faculty, representing every school and department of the university, are summarized and described in this preliminary report of an exploratory study on audiovisual media at Stanford. Areas included in the interviews were: 1) learning and technology, 2) what is the hardware, and 3) what is the software. In the introductory sections of this informally-written document the audiovisual field is defined and its projected future role in education, technology, and society is discussed. The major emphasis of the report, however, is devoted to the two sections on the media at Stanford--what is happening at Stanford, and what are the goals, advantages, and opportunities of Stanford. A final section explores fifteen problem areas that must be attended to if Stanford is to "make the media useful for its and mankind's potentials." (WR)

EXPLORATORY STUDY ON AUDIO-VISUAL MEDIA AT STANFORD UNIVERSITY.

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Stanford University, California
January 1974

I. INTRODUCTION

The following is a survey. It is a preliminary study--an overview--of the potential applications of television and related audio-visual media in Stanford's future operations.

Inception

This assessment attempts to answer the questions set forth by Robert Beyers in his letter dated July 16, 1973:

1) Does the University have significant existing resources which could be used for audio-visual news and documentary purposes on an economic basis?

2) How well have these resources been used to date?

3) Is there any means by which their future development could be achieved on a partially or wholly self-sustaining basis?

4) Which of the existing and projected media technologies have the greatest application and benefit to our operation and the University?

5) What appear to be the best means of organizing to tap this potential, recognizing that the University itself cannot devote any major new financial resources to this field?

In attempting to answer these questions, this consultant felt it necessary to place these questions into the context of larger areas of thought:

1) What is Stanford? Is it a unique resource? What does it have to offer its students and faculty, its alumni, the Bay Area Community, the nation and perhaps the world? How does it view itself, its role and its responsibility?

2) With its prestige, resources, talent and technology, where is Stanford today? What position will and can it look to enjoying in the year 2000?

Parameters

The writer wishes to set forth several points in this introduction. The first is that this is a limited report.

1) The report was limited by time and timing. The project lasted approximately three months. The survey began during the writer's recuperation from a spinal fusion and took place during the summer months. Many individuals sought to be interviewed at Stanford and elsewhere were unavailable. There was little opportunity for further personal inquiry.

Those interviewed generally fell into two groups: the theoretician, the "Blue Sky" optimist; and the strict pragmatist, the "I tried; it didn't work; it won't work" negativist. In fact, there are very few practitioners--those in the middle ground between the idea and the reality. Often they are so busy trying they don't have the time or the willingness to theorize or explain what they are doing and why.

2) The report was limited by available research on the use of technology by institutions of higher learning. There are works in progress, for instance at SRI.* But while extensive research has been conducted on secondary institutions, the little which exists on universities and colleges describes equipment rather than content or qualitative analysis.

Also, the documents, pamphlets and reports are, for the most part, hackneyed and redundant. They pose the same questions, quote the same sources, report the same statistics. One quote, for example--neither Biblical nor helpful--appeared in six of the leading reports on education and technology. In some cases, systems described are presently not in operation.

At Stanford, this report was limited because certain student and teacher evaluations were not available. One began to wonder whether there truly were an honest, in-house willingness "to engage in a continuing process of self-examination and self-renewal."

3) The report is limited because it was not delimited. In an attempt to answer certain specific questions, the writer felt these questions must be placed in perspective. Since this is a cursory examination and not an in-depth study, the writer interpreted this assignment as an attempt to focus--to create a dialogue which might lead to practical possibilities while heading off incipient problems.

Approach

For this report, approximately 400 people were interviewed throughout the U.S. at educational institutions, industry, commercial, public, educational and cable television operations, foundations and government agencies. While written reports were balanced with verbalized opinions, special attention was paid to the mission, the message, and the balance sheets.

The areas explored were:

1) Learning and technology: How do people learn? Can people learn by media? Why have institutions employed technology as teaching tools? Which institutions have tried? What are the successes and failures and why?

2) What is the hardware? Who makes it, what does it cost, and what is it likely to be? Can hardware decrease the cost of education and improve learning?

3) What is the software? Who makes it? What is produced and for whom? Who uses it and why?

4) Are we in the "Fourth Revolution"? If so, where are we in it? What are the problems? What are the possibilities? Which is the path?

Without answering these questions here, the reactions of those interviewed might be of interest:

1) "Don't waste your time on this project No major, prestigious university has been willing or is going to use technology in its instruction."

2) "Why are you doing this? Stanford has the experts. The major works on the subject are by Stanford professors. Stanford people are chairmen of the leading commission reports in the field."

3) "It is consonant with my appraisal of Stanford as an institution that it is exploring just these questions."

4) "What is going on at Stanford? I can't find out. I'll admit I granted this interview in part to learn about Stanford. Is it a wasteland, as some have described it—years behind others in terms of its use of technology in instruction?"

5) (This same response was given by a major foundation official and an important fund-granting individual within the Office of Education.) "We're like heads looking for bodies. We've spent [millions] trying to get institutions of higher learning to use media, and without success."

The writer returned to Stanford for the month of August with a short list of names of individuals in the faculty and administration. For the most part, these individuals used or had used or were interested in using instructional technology.

From these individuals, names were given of others with similar interest and experience. In addition, each Stanford department and graduate school was contacted by letter, by phone, or interviewed in person. And professors were telephoned at random as well as students contacted on the spot.

The question asked of professors were:

1) Do you now use, have you ever used, or are you interested in using audio-visual media as teaching tools—to supplement or to enhance instruction?

2) What software—maps, charts, slides, films, records, audio or video tapes—do you or have you used? Who produces it and where did you get it? Why have you used it and what were the results?

3) What hardware have you used? Who owns it? Where did you get it?

Again, without answering these questions here, the reactions to these questions might be interesting.

1) "I have never used anything audio-visual and I have no interest in its application."

2) "Surveys, surveys, surveys. All Stanford ever does is survey. I want no part of it."

3) "Who's behind this? Who gets the results? I have a projector but it's my own."

4) "Forget it. This is a can of worms."

5) "Thank goodness someone is finally looking into this. I'd like to see the results." (This was the most frequently heard remark, but it might be remembered that, for the most part, those contacted had used media or were interested in its application.)

Briefly, at one time or another, in some manner, every professor, every department, every school at Stanford uses some form of audio-visual technology or technique.

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Interest and application run the gamut Knowledge of available software and hardware and their potential application is negligible And the problems range from "why can't I get a simple slide" to "why can't we get that [what amounted to a feature production] film made."

In an attempt to explore how to satisfy needs and meet desires, those interviewed were queried as to the desirability of a single service unit through which software and hardware easily could be obtained. It was suggested it could assist in class use and be a means for independent, individual instruction Also, it could advise and assist in software production and course preparation Professors who were dissatisfied with available software were asked whether there were materials which could be produced for classroom use, for the University, and which might be useful elsewhere

And, finally, professors and departments were asked their reactions to closed circuit, campus-wide television, what they might be willing or able to teach or transmit should Stanford have an education/information/communications satellite

The last set of questions elicited:

1) "Oh, dear. That doesn't surprise me."

2) "I want nothing to do with it."

3) "We are? Damn it. Why aren't we doing . . ."

Difficulties and Things Learned

In most instances, the writer did not possess foreknowledge of the attitudes, interests or specific expertise of individuals contacted. While not good journalism technique, lack of foreknowledge can have value. Despite one dean's comment that this consultant "had courage to approach some distilled personalities," there may be a common reason individuals arrive at the top of the heap. There may be a correlation between a professor's receptivity of a broad question dealing with his life's work, his capability of exploring an idea briefly, his willingness to respond with courtesy and clarity, and his overall ability to teach. One step further: it seemed to follow that those truly dedicated to teaching and the pursuit of knowledge were those not satisfied with the status quo and who were interested in applications of the new technologies

A second area of difficulty was terminology concerning media. This reporter was told by several representatives of the administration and one or two faculty not to use the term "audio-visual"—that it "frightened the professors" and was outdated

The greatest thoughts often have been expressed in the simplest language. Man and language have been here relatively a long time, technology a shorter time, and technological terminology a shorter time yet. Application of instructional technology has been at Stanford the shortest amount of time of all

A few Stanford professors were not comfortable "with this new term and area audio-visual." Many had never heard of an overhead projector—much less seen or used one. But even Stanford authorities on theory and Stanford experts on application used audio-visual as a "catch-all" shorthand before or within more explicit exploration Aspen Institute and Carnegie Commission reports have noted that terminology concerning instructional technology often has impeded progress. As Frank Newman described technological terminology, "it is an attempt to describe an unknown realm." (See Appendix A—A brief glossary).

One penultimate word: the writer admits she is a newcomer to this field, but so did she learn were those who had admonished against using "audio-visual." In some instances, it was those very individuals who had already proceeded to Z—with no practical experience—without glancing at or stopping at B.

And, finally, the third general area of difficulty perceived was intellectual curiosity and communication, which, while often befuddled by terminology, has more to do with willingness and capability. The arrival of this consultant was a chance for others who had not done their homework to receive free, easy advice. If students have to read books, walk from class to class, know what's going on at Stanford and in the professions they wish to enter, it might be that the faculty and administration should have to do the same.

It has been said that the mills of the gods grind slow, but they grind exceedingly fine. Stanford is hardly a wasteland, but in its ability to acquire material as opposed to doing anything worthwhile with it, Stanford may be on the verge of creating an expensive, fragmented mess.

II. THE PROJECTED FUTURE FOR EDUCATION, TECHNOLOGY AND SOCIETY

It is said that any society is only 20 years off from barbarism. 1984 is only a decade away. And, to hear tell it, by the year 2000 universities and nations will be launching education/information/communication ites instead of providing the technology and mechanics for dropping bombs

Perhaps, as Prof. Edwin Parker predicts, there will be an "information society"--a genuine interrelationship between people, their desire for and their use of knowledge And perhaps there will also be harmony between education and technology--technology which will aid as a result of carefully defined needs and objectives, rather than be an impediment merely because systems of technology are feasible

For the year 2000 it is predicted that technology will provide the following:

> "An interconnection of independent information, communication, and instructional resources, with the combined capacity of making available to anyone, anywhere, at any time, learning from the total range of accumulated human knowledge

The Carnegie Commission, *The Fourth Revolution*

This stated condition of advancement will include computerized programmed instruction, on-line computer aids to learning and scholarship, closed-circuit lectures on the public address system, dial access audio and video recordings, live instructional television, closed circuit live instructional television, fascimile transmission of documents by electronic circuits, automated storage and retrieval of written and graphic materials .

All libraries will be interconnected; there will be increased faculty interchange and sharing; there will be greater demand for education and a reduced cost of learning

People won't have to leave their homes to have a full voice in local and national politics; industry and the citadels of learning will be in closer union; an individual can shop merely by turning a dial on a tube; newspapers will be at the newsstand on videotape or delivered in cassette to the door by the morning milkman.

But doth the milkman cometh? Do we want him now, with or without cassette? Do we need electronic coffee, tea or GNP? Some think so. Some do. And many probably don't.

To date, it has been argued, technology has as much messed up man's relations with man as helped them. It also has been successfully argued that education has produced as much personal dissatisfaction through unrealizeo expectations as it has resulted in any degree of contentment

We are in the fourth--the electronic--revolution. There are limitless opportunities and frightening chances for circumstances beyond our control So where are we in the fourth revolution? Many, such as Robert Tolbert of the Corporation for Public Broadcasting, believe we are on the verge of a dramatic breakthrough with the development of inexpensive cassettes and laser disks Others, such as David Burkman of the Office of Telecommunications, believe we are farther behind than five years ago.

The breakthrough in the third revolution--printing and the availability of books--took place 500 years after the dawn of the era. Cheap paperback books which you could touch, mark, tear and throw away were the true revolutionary factor in printing Today what is printed? The best--and many times the most popular--paperbacks are reprints of classics. The newspapers--interconnected by worldwide wire services--reprint wire stories (mistakes and all) with scarcely a glance at the communities they are to serve And magazines--the profitable ones are specialized--the most popular (*TV Guide!* expresses the public hypnotism by (probably how poor it is) the fourth revolution's television.

As many have observed, we get sophisticated equipment and work downward and backward. We have communications satellites, television, radio and the telephone. In the average home there is a small arsenal of electronic equipment. How is it used, how well is it utilized, and what is transmitted? People don't watch sunrise specials, but sports and movies. For many, there is more enjoyment and intellectual satisfaction in watching an old black and white movie (well-written, with message) than a current color presentation More information reaches more people perhaps by radio than any other means, and many remark they enjoyed listening and imagining with radio and theatrical touring companies years ago more than they do now being able to see distilled and digested television.

There is no question television has increased public awareness. There is no question children have learned from "Sesame Street"--though who learns and how much is another matter And there is no question that television and related media carry marvelous opportunities But while media influences, can it teach? Have even the radio and telephone been tapped to their fullest? Do people know how to ask questions or talk with anyone? Communications is more than access.

There are many who predict two-way television communication is going to revolutionize the fourth revolution. Can a cassette or box on top of the tube, at whatever price, instruct or motivate if there is no concern for quality of content?

In the period 1919 to 1969 the federal government spent 32.5 billion dollars with the aim of maximizing media in schools. It was for hardware. During the last decade foundations spent untold millions on educational technology, mostly for hardware. And during the last few years educational institutions have raised and spent money, again for hardware. And most of the hardware has gone unused

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Most of the money for hardware went to high schools High schools, however, have usually taken directio from universities, and until very recently colleges had little inclination to take advarntage of possible cost and time saving values in instructional technology

Today, across the U.S and abroad, institutions of higher learning have begun to move, and the stimulus comes not alone from cost and student factors In many instances, colleges and universities have taken a new focus because of industry, which in turn has reflected the pulse of society

People are not satisfied with their lives They are bored with themselves, with each other, and they are bored by television and by the newspapers which have neglected to offer perspective or to ask the question why People are not satisfied with their professions and they are not content merely with security and salaries. The mobil society is seeking comfort zones in the old stimulus of learning

Career planning and continuing education, which began as public relations efforts by industry and colleges are beginning to be a major interest of individuals and thus industry and educational institutions Gradually these efforts have shown promise and now some are beginning to show profit as well.

Without attempting to describe here the variety of systems and approaches of colleges and industry, some conclusions can be put forth The established, prestigious institutions of learning are busy looking at each other, while the smaller, new institutions often are being truly innovative

Some institutions of learning are without walls (the University Without Walls, Minnesota Metropolitan State College, and New York's Empire State College). Some ambitiously plan to put the first two years of college on videotape and television (Governors State University, Illinois) Some have closed circuit television on campus (Michigan State) and reach the community and state by television but not necessarily to educate

Some have dial access to libraries from outside the campus (Bush Library, Hamline University, St Paul). Others have elaborate facilities for dial access within (Brigham Young University) and professional production facilities. Some are preparing teaching packages which include television, texts, teaching clinics on a statewide and regional basis (State University of Nebraska), and a growing number are using Open University materials or the complete package which includes television (California State University, San Diego; Rutgers; University of Houston; University of Maryland).

Many have elaborate production facilities, including television, and use media to serve the institution (State Univ. of San Jose and UCLA). Some concentrate on videotapes and videocassettes for internal and external use (MIT, Rice), and a unit of Harvard has entered the field. The Harvard Videocation Systems exploit applications of videocassette programming and distribution in a participative and interactive form of education. The Harvard entrepreneurs have reported: "We actually have people talking back to their television sets."

Only one or two institutions have made use of cable educational channel opportunities (Lynn-Benton; the University of Oregon).

Stanford Communication Prof Edwin Parker has described the opportunities of instructional technology as being similar to the freedom of access of the automobile It is the institutions which are addressing themselves to the very problems of the car—the message, the content, the utilization, and then access--which will be successful

These are the many institutions which are not talking at or about issues but participating with the public and students in exploring social issues (preventive medicine, social welfare, prison reform, crime, alienation, etc) These are the institutions which give people a chance to use media, and not be used by it

In this genuine interaction the student or public often holds the camera or writes the script (Oberlin College--drug referral; Community Video Center, Federal City College, D.C.; Temple University, Philadelphia--inner city gangs and teenagers; People's Video Theatre, New York—health information; Alternate Media Center, New York. Video Tech, New York University).

And the potentially successful application of media and two way cable will be made by those institutions willing to participate with a public beyond its perimeter with genuine and carefully programmed personal interaction (University of South Carolina)

The Ford Foundation's *An Inquiry Into the Uses of Instructional Technology* states:

> "Instructional technology is to make education more productive and more individual, to give instruction a more scientific base, and to make instruction more powerful, learning more immediate, and access to education more equal."

In any institutional application of the new technologies, whether on campus or off, at the industry or ...d, the message must be well defined, the medium must be appropriate, and the desires and needs of the ...ce must be clearly recognized

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"The first step must be an analysis of the needs and requirements of society matched up with unique characteristics and capabilities of electronic technology for the delivery of those ideas." Journalism Professor Sig Mickelson, Northwestern University, *Aspen Notebook on Continuing Education*

Before taking the first step and before technological circumstances become beyond control, the institution which will be successful in their approach and application will be those which understand and satisfy their own needs.

III. WHAT IS HAPPENING AT STANFORD

A. In a Nutshell

Stanford has been described by Stanford professors as "primitive" and "not in the latter half of the 20th century" in terms of its use of instructional technology. If it were possible to measure extent and effective use of media, Stanford might well rank far behind the majority of universities and colleges in the U.S.

"It is almost criminal that this University has made so little use of teaching aids," wrote Electrical Engineering Prof. Michael Arbib in the 1969 *Study of Education at Stanford*. Professor Arbib at that time, along with a few professors today, was talking about reproduction of lecture notes—rather than an integrated, well-conceived program of instruction.

In the summer of 1973, English Prof. John Bender remarked: "It is a very bad situation now. The University isn't even providing the context for faculty members wishing to spend time on instructional technology."

"There is no natural interest in audio-visual aids," commented History Prof. John Lewis, an interested use of instructional technology. "It is just not the focus of the University."

"And," commented Education Prof. Michael Kirst, "it is ridiculous not to use available technology."

But does the University administration, can it, must it give the focus to the faculty? Classics Prof. Anthony Raubitschek doesn't think so. "You can't expect the University to make up for the deficiencies of its members."

"Research institutions are not interested in the number of intelligent faculty using audio-visual," commented Richard Clark, research associate at the Stanford Center for Research and Development in Teaching (SCRDT).

"But the only Stanford faculty using or interested in using instructional technology are mavericks," concluded a Stanford administration official.

* * *

An attempt was made to contact every school and every department at Stanford. In interviews with and responses from approximately 300 Stanford faculty, the extent of use and the degree of interest in exploration of instructional technology is greater than may have been presumed.

"The use of tapes and records and slides is so common I can't pinpoint all the uses in the humanities and religious studies," commented Prof. William Clebsch. "Hardly a week goes by without some presentation."

"Slides are used from 30% to 50% of the time," remarked a classics professor.

"Slide projectors are always used," remarked Prof. Norman Wessells.

"The overhead and 35mm projectors are in use all year," stated Applied Earth Sciences Prof. Frederick Kruger.

Every professor, every department, every school at Stanford uses some form of audio-visual media in instruction. The use of media, after all, can be described as merely an extension of speaking or drawing on the blackboard.

In many cases, while some professors are audio or videotaping lectures, using overhead projectors instead of blackboards, for the most part the ways in which technology has been used has neither been creative nor efficient nor effective. Media has been used as a last resort in some cases to meet student demand for a given course. And, in at least one example on campus, use of technology in essence replaces the professor.

The interest in the use of instructional technology is widespread, and ranges from department chairmen to tenured and non-tenured faculty members and those who "don't care" not to mention the students.

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There was a small scattering of comments such as the ones by Sociology Prof. Sanford Dornbusch, "I do not use audio-visual materials and I do not wish to use them," and Geology Chairman Konrad Krauskopf, "Everyone here is satisfied with things as they are." But the majority of responses, even from those surveyed at random, illustrated a substantial degree of interest.

"We are most open to ideas. The department is wide open." Slavic Language Prof. Richard Schupbach.

"The department is trying to use audio-visual aids. It is too important a teaching aid to be neglected." Biology Prof. Norman Wessells.

"I'd like to see instructional technology pushed." Biophysics Prof. Philip Hanawalt.

"We are not big users of audio-visual materials, but perhaps we should be using more." Geophysics Prof. George Thompson.

"We need a more orderly, systematic use and application. We are working from ignorance. But we felt experimentation in instructional technology is so important that we needed someone for one-third of the time to do it." Political Science Prof. Richard Brody.

"The Department of Political Science has been amiss in the use of audio-visual technology. Something ought to be done to introduce our staff to the new technologies." Political Science Chairman Heinz Eulau.

"I would like to use audio-visual materials more than I do. But the facilities are limited and it is time consuming." Biology Prof. Richard Holm.

"We are very interested. [Our application of instructional technology] looks very promising. The student response is uniformly favorable." Law School Associate Dean Joseph Leininger.

"We are exceedingly interested in exploring this field." Business School Associate Dean Samuel Pond.

"A good lecturer is aware of and willing to use the new techniques." History Chairman Gordon Craig.

"Those interested in teaching better want to use audio-visual and do. They will lead the others." Medical School Prof. Robert Chase.

* * *

At any university, real power lies at the grassroots. In several attempts by university administrations to force a focus onto faculties—to use instructional technology, for example, as a means of saving money rather than to increase learning—faculties justifiably have refused. The hardware now collects dust.

The beautiful luxury of autonomy and departmental structure often not only has meant that instructional technology is used less often, but that it is employed less efficiently and less effectively than might be. For instance, expensive, incompatible, duplicate equipment easily can be rationalized and obtained.

The technology is often embraced as a new toy, "in a holiday spirit, not as life blood," as English Prof. Bliss Carnochan put it. Little thought is given as to whether the media to be employed is to enhance, supplement, or to enlighten anyone. And it is a frustrating and time consuming exercise, as every professor who has employed it has remarked. "The use of audio-visual aids sounds easy until you do it," cautioned Business School Prof. G. L. Bach.

"It consumes time and energy. It doesn't seem to enhance or justify. And you don't know if something essential is added to the course, the same as with canned fruit." Art History Prof. Kurt Forster.

Many professors don't mind using audio-visual aids as long as they are somehow not directly involved. Meanwhile others have chosen to be involved, and some have claimed to have achieved a "first in the country" in application and production, when that same wheel was invented and used earlier on campus and elsewhere.

* * *

Simultaneous with this situation, a few faculty and administration officials are preparing proposals for money and/or new systems—closed circuit television, two-way cable.

The question is, who will be expected to use any new system? A professor who is reluctant to be videotaped at Skilling? Will it improve or change anything? What will be transmitted? The same old talking face?

Will professors exchange information by pushing a button from their bedrooms when they don't share information about techniques and technology with a professor across Inner Quad?

Have those systems been tried elsewhere? At Stanford, for instance? Where are the successes and failures and why?

Can technology and new systems of technology be supplanted on a fragmented system and meet or satisfy basic, immediate needs of a professor who merely wants to teach better by using a slide or graphic which he can't acquire, get produced, or have projected?

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One or two or those interviewed stated it would be "nice for Stanford to have the hardware." Quite a few used the pet phrase of the day: "not being in favor of a telecommunications system is like opposing mother's milk." "It's the cart before the horse," was the response of a substantial number of those interviewed. "I don't think anyone is opposed to closed circuit television," commented Slavic Language Prof. Joseph Van Campen, "but no one knows anything about television."

* * *

"Don't use the term 'dark ages' when talking about Stanford," was the word of advice of one professor who had just done so himself.

Well, Stanford may not be in the dark ages. It actually has at least one good example of use of instructional technology which has been a model for other institutions. (The Stanford Instructional TV network in engineering).

But a more accurate statement about Stanford might be that Stanford is blinded by the bright skies. It is up there somewhere and to some it does not appear to have to be worried about where it is, what is going at its own grassroots or in the fields next door.

Stanford has many unique beings and many experts. But, as one recent Stanford Ph.D. described some faculty and administrators: "They are experts on paper. They are dreamers, prophesiers, proposers, not doers. They find it easier to write a request than to make things work." Instructional technology has been with us a short while. There are few practicing experts anywhere, even at Stanford.

* * *

A very long time indeed seems to have passed since David Starr Jordan could even say that every time he remembered the name of a student he forgot the name of a fish. In trying to determine and describe Stanford's place and potential, its current and possible uses of media and instructional technology, this writer was struck most of all by a lack of communication at all levels at Stanford.

One dean of a Stanford graduate school, for example, asked this writer whether one of his oldest, most respected faculty members had ever used media and was interested in its application. That professor probably has had more actual on campus and nation-wide experience with instructional technology than any other single individual at Stanford.

The simple ability to communicate—to preach a little—is the most important and difficult of tasks. Effective communication is essential, however, in any effort to achieve perspective and a good sense of priorities.

The following is admittedly a "grassroots report" intended to create a dialogue, to gain perspective and perhaps to establish priorities. And, as Philosophy Chairman Julius Moravcsik remarked, "Stanford has a great need of a better sense of priorities."

B. What is going on at Stanford

Stanford is doing its fragmented best to embrace the new technologies.

It is 1) obtaining hardware; 2) obtaining and producing software; 3) permitting its talent and resources to be used by outside interests, in most instances without commensurate revenue returning to the faculty or the University; and 4) reaching beyond the traditional University boundaries, in a few good instances with revenue returning to the faculty, the department and the University.

1. Hardware

"Our janitor was just zapped by one of Stanford's 400 lasers," one professor (jokingly?) told this reporter Well, a small, elite university such as Stanford perhaps needs that number of lasers. But is there an authority on high who knows the numbers of lasers on campus, where and why they are? In any case, lasers were not a part of this survey, even though they doubtless will play a part in instructional technology.

Unlike computers, there is no inventory of audio-visual hardware at Stanford, and there is no system of accountability or standardization of purchase. "I buy it and receive it but no record is kept on it" (George Wood, Purchasing Department).

Nevertheless, a large interesting assortment of production and playback equipment exists. (Appendix B—Partial, Preliminary Inventory).

media survey 99999

Every department at Stanford either owns, possesses, or makes use of some type of equipment which would fall in the large range of audio visual hardware The equipment ranges from what Religion and Humanities Prof. Clebsch describes as a "pre Paul Whiteman record player" to a mobile color videotaping unit, film editing equipment, sound studies, closed circuit cable, and probably by now miles of cable footage.

Some of the hardware belongs to individual faculty members such as Biology Profs Norman Wessells and John Thomas who use their own 16mm and 35mm projectors because as Prof Thomas described the situation, "to get the department projector is a big hassle It doesn't work anyway because no one knows how to use it."

Some of the hardware belongs to the University, such as the hardware rented by Plant Services. And some of the hardware comes through grants, such as the facilities within SCRDT (Title 6 of the National Education Act is for hardware, not for what you do with it.) And some of this grant hardware eventually has come into ownership of the University, become the possession of and thus ownership of professors or departments.

Much of the equipment is in various states of repair. "We have a couple of broken down slide projectors which are regularly stolen," states Drama Prof. Wendell Cole "The Art Department won't loan us a slide," reports one humanities professor, "because our machine would burn up the film." And, submitted English Prof. Bliss Carnochan, "We have very little equipment and none of it is very good."

Some of the equipment is not compatible with present equipment, such as the Sony and General Electric videotape playback machines in the a/v basement closet of the Business School. And some of the equipment is not compatible with projected use or potential future systems, such as the cable conduit linking the new Law School with SCRDT and on top of which by now foundations must have been laid

Some of the hardware is not applicable or the best available for the purpose "They've spent all that money on hardware and it's the wrong kind. They should have asked us," said one professor of a particular facility.

Some of the hardware won't work on command, as a number of professors related of their experiences "lugging in soundboxes" or finally "getting that projector."

At least two individuals reported the facilities at SCRDT didn't work and had no personnel. Meanwhile another department chairman, "frustrated by all that beautiful equipment which I can't use," is busily "duplicating that hardware" but with a system long outmoded.

Perhaps it is not surprising some professors have not heard or used Bill Cleveland's audio-visual equipment in Plant Services. After all, Plant Services sounds more like a facility through which to obtain a lawnmower than anything sophisticated or relating to instructional technology.

For the most part, the professors who have used Plant Services have reported satisfactory working relations. But a significant number stated they "won't use slides if we have to use Plant Services."

"I refuse," stated a humanities professor, "to pay for the services of two men to show up 45 minutes before they are needed, stand around all over the place smoking cigarettes, and then be forced to pay for 45 minutes past the time they are needed—all to run a simple projector. I won't pay and so we don't use."

Communication Prof. Lyle Nelson's comment describes a situation and a potentially expensive solution: "Why should I pay $15 for the use of a projection screen when I can buy one for $7."

Only one or two professors even mentioned they made use of the audio-visual facilities at Meyer Library. Assistant Library Director Robert Golter stated he thought it was because the faculty "just isn't interested." But perhaps one reason is that some of the Meyer facilities (the Music Library) are regularly taken over for reruns of biology-taped lectures. Others have complained that "the Meyer person, while trying to be helpful, is not expert," or "the equipment doesn't work and no one's around."

There is a fair degree of sharing or interdependence of equipment, despite some who "won't let our projector get out of the building." The Law School presently makes up for one-half of the available production time of SCRDT and its new building is heavily dependent on "the bunker." Also, James Williams' Medical Instructional Media unit has close working ties with SCRDT.

Stanford's use of computers for storing and data processing is well-known for having "led the way" for other educational institutions, especially concerning mathematics. Professors in philosophy and other disciplines reported satisfaction with their arrangements.

Stanford's two other most successful examples of hardware and effective use are the Language Laboratory and Stanford Instructional Television Network.

(more)

The reason for the enthusiastic support of the $160,000 Language Laboratory is not only due to the skill and dedication of John Metcalf and Spanish and Portuguese Prof. Phillip Peterson, but probably also because the Language Laboratory is autonomous. It is physically in Meyer Library but it is not a part of the Library Systems and thus is not considered an incidental activity of an operation dedicated to the printed page.

The overall success of the four-year-old Stanford Instructional Television Network, with its 160 hours of live instruction per week, is probably due to what might be described as the general disposition of the members of the Engineering School.

Individually and as a group, the engineering faculty is innovative and exemplary. The faculty appears to know more about what is going on internally as well as at other institutions. They are mid-way between those who think without acting and those who act without thinking. Their program was designed for a specific target audience with specific educational objectives. They experiment and analyze, experiment, explore and evaluate some more. And its approach has been copied by the University of Southern California, to name one.

The Engineering School, the Language Laboratory, and Computers are examples of hardware which was appropriated selected, has been accounted for and maintained. The initial costs have been justified. And these are examples of instructional technology effectively used to improve learning and the art of teaching.

2. *Software*—Commercially Produced

Every professor and department uses software which is commercially produced. Textbooks are commercially produced, and the library is still considered the "heart of the University."

Additionally, at one time or another, in various ways, and to varying extents, every department makes use of records, tapes, slides, maps, graphics, and films which have been purchased, rented, borrowed, or, in at least one instance, admittedly filched. "We are all alert to picking up things at meetings," one science professor responded as to his source.

A number of pockets of commercially produced software exist on the Stanford campus: the Communication Department's collection of films: the Archive of Recorded Sound (currently unfunded and closed to nonmusic faculty, students, and friends) with more than 100,000 cylinders, disks, tapes, and printed materials; Hoover Library with 600 16mm and 35mm films, and also at the Hoover the Vanderbilt Television News Archives (operated by Ed Bacciocco) of the three major networks' evening news broadcasts, dating from 1968; the Medical School Fleischmann Study Center with its Computer-aided Simulation of the Clinical Encounter (CASE), Computerized Random Item Bank (CRIB), and assorted videocassettes, videotapes, audiotapes, microfish, carrels and films.

There are the 4500 media materials at Meyer, which include the "Civilisation Series," and approximately 40,000 Art Department slides which were commercially produced. Anthropology has approximately 20-30 films, and it is not known how many of these were commercially produced. Latin American Studies uses Brazilian and Latin American films.

At least two Stanford departments have purchased Open University materials, and a number of departments have received software with the purchase of textbooks from McGraw-Hill and Encyclopedia Britannica. Individual faculty members have obtained software from a variety of other sources, including the Fire Department and National Geographic.

Law School Prof. Michael Wald reports he recently purchased videotape productions on child abuse from the State University of Colorado, and there are the examples of "Anatomy of a Murder," Charlie Chaplin, W.C. Fields, and assorted foreign films used in classrooms or made available to individuals and groups as a means of enhancing or supplementing instruction.

Films on Liberia and life in Tibet are variously reported, and there are, of course, numerous collections—large and small—of individual professors.

* * *

But there is no central inventory, index, or catalogue of available software on the Stanford campus.

"Meyer says a certain film doesn't exist, is not available, and yet we used it last year," commented English Prof. John Bender.

"We are fighting learning what is available," asserted Prof. Bliss Carnochan.

"We would be collectively and individually pleased if we could know what is available." Chemistry Prof. Brauman.

(more)

Professors who have wished to use media for instructional purposes have looked on their own on the outside. For practically all, this is a time consuming, frustrating, and frequently fruitless task.

Those who have tried to use commercially produced software in class have complained they "didn't like to have to be" or "hated to take the time to be" a film critic for the class.

"The films are travel film quality," reported Prof. Kurt Forster.

"I found a suitable film and ordered it, but it didn't arrive until the last day of class." Prof. Anthony Raubitschek.

"The films arrived, I looked at them and didn't use them. The technology is fine, but the content is not good. . .and at a ridiculous cost." Chemistry Prof. John Brauman.

Especially for the Biology Department and the Medical School faculty "there is just no good, appropriate software." As Psychiatry Prof. Vincent Zarcone noted, "If tapes demonstrating various types of psychotherapy and interview techniques were available, I'd use them."

One of the very few companies aimed at filling the void was Cartridge Television, Inc., which hoped to produce videocassette software for institutional and home use. Palo Alto Clinic Dr. Russell V. Lee and Stanford's Prof. Paul Hanna were advisers on medical and educational software. Commenting about the financial bankruptcy of Cartridge Television, Professor Hanna stated what many have concluded: "No quality software is presently being produced."

Meanwhile, a growing number of Stanford professors have discovered the use of software to be an important adjunct to instruction—the "Professor Blood Shows" in the Medical Center (Physical Therapy—Prof. Helen Blood), the Business School "Van Horne slide presentations," or the Law School's Victor Li slide shows, as some have called these efforts to enhance.

There is a growing recognition that the uses of media are not gimmicks but a successful exchange. More and more professors recognize the value of movies "to show how an event comes down in history," as Prof. Gordon Craig described the increased interest in the History Department, or the value in slides "to illustrate how people lived, dressed, or ate," as several Asian language professors pointed out.

The increase in awareness of value of an interchange, along with the subsequent increase in the number of interdisciplinary courses at Stanford, has meant that in order for professors to use software, such as some of the 120,000 Art Slides, their courses must be tied in with or under the direction of the Art Department. And this has been with mixed reactions. "If [the Art Department] becomes much more dictatorial about it, we won't be able to use any slides at all," commented several professors in the humanities and one professor in law.

Thus, on the one hand there is a paucity and an inferiority of software commercially available, and on the other hand the recognition of the value of supplementation. This has led professors such as Language Prof. Joseph Van Campen to make his own tapes and Chinese Language Prof. Kung-Yi Kao to produce his own art slides in the Art Department.

Today at Stanford software production is a growing business.

Software—Stanford Produced

It is interesting to note that the first "film" produced in the U.S. was made at Stanford for research—to substantiate a theory—not as entertainment. This was the Muybridge series of still photographs on locomotion commissioned by Governor Stanford to establish whether four feet of a horse were off the ground at the same time. And it is also interesting to note that at least one professor—Biology Prof. Donald Kennedy could not obtain this "Stanford first" for classroom instructional purposes.

* * * *

Since Stanford's inception, it has been producing software: photographs of Stanford in creation, its environs, and its events. It has made photographs of earthquake damage, demonstrations, and destruction. It has photographed student life, faculty, and administrators, noted visitors and alumni, and is increasingly using photographs in its publications.

In addition, Stanford has produced cylinders, records, and audiotapes of Stanford presidents, political visitors, presidential and public addresses, Moscow radio broadcasts, and special events. There are the John Kaplan [illegible] tapes which were aired over KZSU. And there is the "live" part of the Archive of Recorded Sound—graduate [illegible]ent Mike Stillman's "The Stanford Program for Recordings in Sound" with two albums of John Hawkes and [illegible]enne Rich.

Documentary films have been made by the University on the University, and films have been made by schools, such as the films on the Medical and Law Schools, or the "Prospectus" film by the Business School.

Earth Sciences and other departments have made films on everything from field trips to laboratory experiments.

Languages, music, biology, and medicine, to name a few, have produced audio tapes and cassettes for individual and class instruction. And sports, education, biology, business, law, and medicine increasingly have turned to videotapes as a means of self-analysis and collective instruction.

Films made by individual professors, such as Geology Prof. William Dickinsen, have been widely distributed within the department and the University.

For use by the department, Anthropology Prof. Carl Heider has made a film on New Guinea, and Prof. Bert Gerow collects and curates approximately 10,000 slides made by members of the department.

Some films which have been produced at Stanford for use by Stanford were made possible by grants, such as films made by the Communication Department in conjunction with the Medical School.

And there are the videotapes of the Arms Control and Disarmament series, from a grant by the Ford Foundation, which served the University and presumably are assisting in Albuquerque, where they were last reported.

A large part of the software produced at Stanford is produced at individual and department expense. Profs. Watt, Roughgarden, Wessells, Heller, and Hanawalt, to name a few in biology alone, produce and use their own slides. Dr. Watt, for example, uses slides instead of a blackboard. At least one biology professor uses a student full-time for classroom projection.

Classics Profs. Raubitschek and Webster, between them, perhaps have produced some 100,000 slides, using their own facilities. For a number of years, Prof. Raubitschek has been snapping, developing and copying slides, not only for his and the department's use, but as a service to other professors in other disciplines. "My idea of getting a reasonably good salary is to spend it on teaching," was a Raubitschek remark which might strike some as a novel thought.

In the Medical School there is a handful of professors who have spent time, energy, and their own money to produce course materials. But the Medical School—which probably has more live, walking, worldwide "memory plugs," more need and more opportunity for effectiveness, economy and profit-making in the realm of instructional technology—for the most part has preferred "the fun of talking with students," as one doctor described the situation, to the problem of plotting out and planning a package or course program of truly instructional worth.

With Jim Williams, director of the relatively new Medical School Instructional Media unit, Prof. Dorinda Loeffel (Dermatology) has produced a Self-Assessment Workbook on Identification and Description of Skin Lesions, and Dr. Mark Perlroth (Cardiology) has produced an Instructional Guide for Cardiac Auscultation. And Resident Dr. Ted Hard is trying to make a 16mm color film on surgical techniques. Perhaps more will follow.

On their own, however, at least two Medical School professors have recognized the value in producing supplementary course materials and have used their own initiative, time, and funds. As one Medical Center doctor pointed out, "a recent survey indicated that 15% of medical students could not learn from textbooks and teachers alone."

For a number of years, Obstetrics and Gynecology Prof. Emmet Lamb has tried to integrate software with the total course presentation. He has produced a number (100) units of slides, carrels, cassettes, films with plastic models, outlines, summaries, workbooks, review questions, etc. These have been available to student and faculty at their convenience. And this self-instructional format evidently has been successful. Although this reporter cannot substantiate this with printed statistics, it has been reported that Stanford Medical School graduates have scored extremely well in Ob-Gyn in National Medical Board examinations in recent years.

But, as Dr. Lamb noted, while he uses instructional technology and enjoys using it, "it is less personal." It is for that reason, several doctors suggested, medical professors have a reluctance to employ media—although their art is heavily dependent on technology. And, commented Dr. Lamb, "some of the students resent it."

Another application by a Medical School faculty member which may be more consonant with faculty predilections and student receptivity is that employed by Surgery Prof. Robert Chase. He narrates in class his own films on surgical procedures, answering questions, using a telestrator. It might be pointed out here that media with medicine has its greatest worth and application with color, close ups, and frame stopping. What one "scrub in" might in be preserved and presented to a number anywhere.

(more)

For the most part, the other Medical School departments which have used film or videotapes have been Neuroanatomy, Physical Therapy, Nursing, Community and Preventive Medicine, Medicine, and Psychiatry. Medicine and psychiatry use videotapes for self-evaluation and clinical exercises. Prof. Mark Perlroth, it has been reported, has used Stanford drama students as would-be patients in student history-taking and examinations.

In psychiatry, in addition to Dr. Zarcone's use of videotape in patient/student interviews, Prof. Don Lunde has used videotape in a course on the Disordered Criminal Defendant in conjunction with the Law School.

The Law School has described its use of videotape as "unique to the Law School." Since January 1972, Profs. Anthony Amsterdam, Rose Bird, and Michael Wald have used videotapes for clinical legal education. They have helped tote the camera in videotaping students in direct cross and jury examination for courses on criminal defense.

These videotapes, made with the resources and personnel of SCRDT, have been replayed in seminars for peer criticism and self-analysis. Most of the tapes were filmed in courtrooms in San Jose, some with two cameras—to film the student and the witness; or the judge and both counsel.

As Prof. Amsterdam pointed out in his July 24, 1973, "Program of Clinical Legal Education," this *voir dire* approach is active rather than passive. The instruction is a guide for self-awareness, skill and judgment, and self-respect. It enables the student to introspect, to know his own strengths and weaknesses and to bring the mental operations of the practicing lawyer into focus. It breaks the wall between academic and real life.

> "The key to this phenomenon is simply that individual program students come to appreciate the relevance of much that is taught in Law School to what they anticipate doing as lawyers."

"We have to begin videotaping lectures," stated Prof. Amsterdam, "because all of the new programs make enormous demand power on the faculty. Courses are more complex. There is no call for extended use of the live teacher. Today's professor does most of the talking. There is student unhappiness with the Socratic method."

In the "Program of Clinical Legal Education" report, Prof. Amsterdam states:

> "The benefits of having students teach each other are both economic and atmospheric; each Law School gains the added teaching resource of a large number of capable people; it can thereby intensify instruction without multiplying *per capita* costs."

"One-third to two-thirds of the Law School faculty are interested," reported Prof. Amsterdam and "the students overwhelmingly considered these the most effective courses." In the next year it is mentioned that Profs. Babcock, Danzig, Friedenthal, Girard, and Meyers will be involved in a variety of clinical videotape teaching.

Law School Associate Dean Leininger stated the clinical exercises have been "highly successful." While, as Dean Leininger stated, "there is great potential in clinical activities—simulated or real law related," and plans for the new Law School have considered this, there may be additional value for the Law School in this activity.

The Law School's enthusiasm left unanswered whether Stanford's use and approach is unique, at Stanford or elsewhere. Two articles in the November 1972 *Hastings Law Review*, one by Michigan Supreme Court Justice Thomas E. Brennan and one by Hastings Law Professor Guy Kornblum, are devoted to videotape and videotape in civil cases. These articles discuss the preparation, presentation, and preservation of evidence in courts (and colleges) in Michigan, Ohio, New York, Florida, and California.

For the future, it may be that the development of skills in deposition taking, editing, certifying, sealing, and presenting videotape evidence, as well as knowledge of copyright law and other matters relating to "this most dramatic and potentially revitalizing of all recent developments in the administration of justice," may be an important focus for the Stanford Law School.

And, finally, concerning the Law School, there is what appears to be an afterthought: "The Recommended Facility Modifications and Additions to the Stanford Law School Building." Is that cable conduit connecting the new Law School building large enough to handle anticipated use with SCRDT or potential closed circuit campus-wide cable television? Are the control room dimensions of adequate size? What is the present faculty use of instructional technology and where is it conducted? What is the planned for or potential use—videotaping lectures (either "always changing" or "the same old thing") or clinical, individual experience and exposure?

Communications: the practitioner, the administrator, the architect and the engineer. Whose fault is it going to be?

The Business School, to this writer's knowledge, has produced four videotape/film presentations with Prof. Robert Davis, Hal Leavitt, Ezra Solomon, and a dialogue between then Ricks College President Henry Eyring and Assistant Dean Robert Simon. Tentative and perhaps actual videotapes include Profs. Gene Webb, Gerry Meier, Mike Ray, Jerry Miller, William Massy, and Keith Lumsden.

In the Research Paper Series, entitled "The Information Content of Student Evaluations of Faculty and Courses," Prof. Keith Lumsden writes:

> "Students consider the course's contribution to knowledge to be the most important single component of output. The opinion of how clearly the instructor presents his materials and the extent to which he imparts enthusiasm have the largest coefficients.
>
> Having respect for student opinion, knowing his subject, being well prepared and demonstrating a practical knowledge of the application of course materials have sizable and significant coefficients.
>
> The instructor's use of visual aids, ability to avoid being sidetracked and willingness to provide useful comments on homework have small but statistically significant coefficients.
>
> The most important attribute is clarity of presentation followed by imparting enthusiasm and knowledge of subject."

The Business School videotapes, produced within Skilling or the facilities at Hewlett-Packard, for the most part are straight "teacher talking at you" demonstrations. There is minimal use of graphics, no significant movement of the camera, and no change of pace for inclusion of supplementary materials or examples. In short, to date there is little creative use of the medium.

There can be value in filming the expert with his polished lecture, but only if the presentation is with tutors. "The students overwhelmingly voted for videotape instruction with tutors," Prof. Lumsden reported.

As Profs. Lumsden and Dean Jamison reported in the Research Paper "Television and Efficiency in Higher Education":

> "The increased options of (instructional television) would allow various combinations of more courses, more faculty research, and more students enrolled per year; the increase in total tuition income resulting from higher enrollments could be utilized in a variety of ways to the benefit of both faculty and students."

But we are learning the same old thing. For economy and efficiency to be created by use of instructional technology, there must be pre-thought, pre-plan, preparation, programmed, packaged presentation. Videotapes must be evaluated, edited, and analyzed.

The polished lecture can be preserved, used to enhance or supplement another's course, for example, but it works best with a teaching assistant in a seminar situation. If it is convenient and easy to use and at anyone's disposal, it can be instructive to the student or faculty.

Of those interviewed who had been videotaped or who had taught at Skilling, "it was an extremely painful experience at first. I didn't realize how poorly I taught."

But as can be inferred from these Stanford efforts at software production, there are problems.

1. *Lack of exchange of information.*

Without inventories of software or hardware, acquisition is not only duplicated but so are production efforts. Evaluations of successes and failures in techniques can economize time and funds, as well as improve quality in instruction.

At least one school explored with this reporter the idea of a sound studio. One wonders how many film laboratories already exist. The Law School had explored centralizing production equipment in its new building, but because of SCRDT's facilities, it is reported, decided to take advantage of their proximity.

One look at a course being taped and transmitted at Skilling indicates students are watching the monitor, not the live teacher before them. The student and the instructor might as well be separated by a million cable miles.

If there is value in the live teacher with the live student—and there is: the professor probably needs the student as much as the student needs the living presence of the professor—shouldn't at least in Skilling the instructor's simulated blackboard scratchings on a pad be presented by an overhead projector behind the professor? Then with a split frame, as is currently used, the professor's notations can be included in the remote student's along with the face of the professor.

(more)

"I was really disturbed to see all the students watching the monitor instead of me," several professors commented. This same comment might be made of students who see only the backs of professors, or professors who see only the tops of heads of students. Much can be done in varying a taped course or classroom presentation between the face and the figures—so that the string of pearls can be a balanced, integrated jewel of a product.

2. *Dissatisfactions concerning facilities, personnel and product.*

With more and more seeking software or the means of producing them, the problems range from the seemingly simpler complaints of Prof. John Bender ("reprographics does such a poor job I can't use them") to Drama Prof. Cole's: "When I want to produce a show I've had to depend on the Communication Department and it hasn't been successful because they are not set up for production. Their students don't understand our needs."

No professor should meet a producer without gun in hand. His expectations are too great. But there were so many complaints about communication that perhaps a few words deserve to be included.

Medical Center News Director Spyros Andreopoulos reported that at one time (1965) the Medical Center wished to have a film made and gave $3,000 to communication for its production.

A graduate student—a priest—received the assignment and shot some film. Then the priest decided to elope and disappeared—with the film.

The Medical Center allotted $2,000 more for the project. But the Medical Center never received a final

In fairness to the interests and desires of the priest, the Medical Center and the research-directed Communication Department, communication is not a service facility. One can commiserate with the Dean of the Business School and the various professors and department chairmen who had a good idea but could not get it on celluloid. They may not have received a return call from communication, but perhaps they should have known better than to expect one.

Without a media consultant, personnel, or a service facility to facilitate decision making on medium or format, many who have gone outside the University have had less than professional results.

The Business School "Prospectus" film, prepared by Assistant Dean Simon, for example, was shown at the World Bank by Dean Pond. It is reported Robert McNamara called it "enlightened amateurism," which is probably fairly accurate. Nevertheless, Mr. McNamara and several corporations have ordered prints of the production. Despite the technical inexpertise, the message gets through. But with only a little additional consideration, talent and funds, that film could have been a fine, professional product, valuable for career-planning, recruiting, and industry relations.

3. *Dissatisfactions concerning focus.*

Most of the professors who had produced software or course materials with measurable success indicated dissatisfaction with Stanford's failure to recognize their ability at teaching, at creating a good course with appropriate selections of media materials.

"We're not even given credit for a good textbook. If we want to produce a knowledge maintenance program, videotape, film or whatever, not only are there not the facilities but there isn't the time. We're expected to do research," stated one Stanford professor who has been awarded Stanford's highest accolade for excellence in instruction.

From the Business School Research Paper Series it is reported:

> "Stanford instructors who spend more time on research tend to generate less enthusiasm, know their subject less well, be less well prepared, have less knowledge of the course materials, practical applications, present course materials less clearly, speak less clearly, and have less respect for student opinions—not an uninteresting finding since it does suggest trade-offs."

4. *Opportunities are lost.*

There is at least one report of a substantial grant which went to Berkeley instead of to Stanford because Stanford did not have the desire nor the capability for production of software.

Special events at Stanford either go unrecorded or have been taped by outside concerns and distributed for profit.

No one knows policy positions or exactly how to handle requests from the City of Palo Alto for career . ning tapes and seminars, or approaches for continuing education courses made by Western Electric, Weyerhauser, eral Electric, Bechtel, Bank of America, IBM, Wells Fargo Bank, etc.

(more)

At the Medical School, Dr. Alan Bernstein is wondering what to do about the approaches for a film he helped make of a Basic Science for Clinicians lecture series which featured Drs. Lederberg, Kornberg, Hofstadter and Pauling.

Law School Prof. Rose Bird reports local bar associations are interested in the tapes she has helped produce with practicing lawyers and judges, and perhaps some of those tapes already distributed have caused a return to the School or University.

And there are many more.

Are Stanford's talent and resources and instruction "good enough for the world," as one professor submitted? Some think so. And certainly a well prepared, selected portion is. Other organizations and institutions think so. If Stanford professors use Yale textbooks, why can't Yale use Stanford software?

5. *One other problem.*

Production of software is not limited to the faculty, the department, or the University. Students are increasingly dependent on a large array of electronic equipment and software as perhaps the necessary tools—yes, alongside textbooks—for a smooth journey through college.

Biology Prof. Norman Wessells describes a situation he "worries about" and which may not be unique to Biology 110 with 425 students.

> "Many students bring tape recorders to the lectures and line them up beneath the lectern. They then type out the recorded lecture and distribute the notes. This upsets a majority of students who have felt it an unfair imposition.
>
> For two years now the students have voted against the use of tape recorders. Besides, the lecture isn't worth it. No course is worth it."

But biology and other disciplines are taping lectures and some lectures which include audio-visual teaching tools are worth it. And with the decrease in costs of hardware, the increase in classroom use of software, one might imagine a day not too far in the future a Stanford student entrepreneur will videotape core courses for sale on campus and off.

3. *Talent and Resources—No Return*

Every time a Stanford professor is telephoned or interviewed by the Associated Press, *Newsweek, The San Francisco Chronicle*, or any other news or public affairs organization, while flattering, essentially he or she is being used by a commercial interest without commensurate return to the individual, the department, or the University.

It may be argued that this is a public service or that this is good public relations. But are there not better ways to serve the public and to promote the University?

Ho many minutes or hours were consumed of Law Prof. Gerald Gunther's time for the two-sentence quote in the October 8, 1973, edition of *Newsweek?*

How much time does it require a Medical School professor to fly hither and yon? He has a verbally "canned" lecture which is probably geared down. He tries to express his enthusiasm for a new technique which he can only talk about, not illustrate. Wouldn't it be better for parts, if not the whole lecture, actually to be videotaped and canned?

For business, engineering, earth sciences, and other disciplines perhaps there is a valuable exchange of information and money for time and trouble

But for most, such as for Anthropology Prof. Julius Greenberg, there not only has been the expenditure of time plus the disruption of schedule, but there has been the problem of being quoted out of context.

Others, such as Chemistry Prof Richard Holm, complain of "being imposed on to do mini documentaries."

Several Hopkins Marine Station and Medical School professors reported having acted as consultants for films, or having been included in films—for $1 token fee.

Spyros Andreopoulos reports "numerous calls to donate films, professors, and time." He reports on "countless occasions" television film crews have been at Stanford making public affairs programs which Stanford could have produced for considerably less on its own. And Stanford seldom has received royalties for its resource or use.

Mr. Andreopoulos reports, too, that professors such as Dr Eugene Farber have been filmed and received nothing. Others have refused. While being filmed, Prof. Lederberg casually inquired how much the author was receiving for the program for which his inclusion would make a substantial contribution. When Dr. Lederberg heard the reply, the cameras ceased rolling.

At colleges and universities across the country there is a growing attitude that expert advice, the inclusion of an individual in a film or a story, should receive more than token pay. This writer, for example, regularly flew to universities throughout the U.S. for interviews with scholars.

The Associated Press, a cooperative, registered under the Fish and Game Law of New York, is engaged in a profit-making business and its documentaries illustrate it. Professors know that. While they know writers frequently receive a flat fee, not royalties, the professors are beginning to ask for the same. The Associated Press, whose reporters cannot buy a cup of coffee for a Black Panther, has paid Harvard professors, their departments, or the university.

This writer also can report that Stanford has been used for archival materials which have been included in documentaries on China, for example, with nothing more than reproduction costs returning to the University. Hoover Institution's Arlene Paul and Franz Lassner have reported the arrival of "floods of TV crews" at each anniversary of historical events.

University Librarian Ralph Hansen also reports "a lot of our patrons are no longer scholars but commercial interests." While the library receives reproduction costs, more and more it has begun to question whether it is getting what its material is worth for the inclusion in documentaries

And there are numerous examples of seminars, programs, special events, such as the summer 1973 Center for Artificial Intelligence conferences, which were filmed at or with the facilities of the University and which have been distributed elsewhere by other concerns, with nothing returning to Stanford.

Stanford's News and Publications Service is probably one of the best in the country. If you live and work in New York, you hear and see more on Stanford than on Columbia, Harvard, or Yale.

The days of the 1950's, when any *Chronicle* headline with the word Stanford in it meant trouble, have long passed. Stanford reports its donations, demonstrations, discoveries, and diatribes. It has helped guide media approaches to professors and students, and made its talent and resources known in worthwhile ways. But it can also look to promoting the University, performing a public service and perhaps making a profit.

4. *Return to the Faculty, Department and University*

Stanford abounds in precedents of profit-making. From the beginning, Stanford has made money on land, the crops and cattle thereon, its temporary, long-time, or far-off people

Stanford has been in the profit-making business in everything from postcards at the museum and University entrance, to books, computers, laboratories, the church, libraries, and archives

Joseph Ruetz' expression of glee concerning this matter can only indicate that sports is probably self-supporting.

It would be interesting to know how much is received by how many professors from interests and royalties in everything from textbooks to film companies.

Law Prof. William Cohen has expressed his delight in royalties received from several 22-minute films he helped produce.

Medical School Prof. Karl Pribram receives royalties for Center Cassettes and Tape Recordings. And Profs. Philip Zimbardo and David Rosenhan have been in Interview Cassettes for Psychology Today. Philip Zimbardo also has been involved in an ABC Television production on prison reform, and Religious Studies Prof Winston Davis also has worked with ABC on a Japanese Religion program for airing next year.

A number of professors have been videotaped while lecturing at other institutions with royalty or fee arrangements. Mathematics Prof. Emeritus George Polya, for example, has been in Open University programs.

At least one professsor belongs to AFTRA and causes returns to accrue to his department and the University. Biology Prof. Paul Ehrlich, it is reported, has a lawyer and an agent for his appearances. Careful consideration is given by Dr. Ehrlich as to exposure and opportunity for return.

And there are the Alumni Association's "Portable Stanford" series; the cassettes of Summer, Day and . . anced Management colleges; "The Stanford Program for Recordings in Sound," which is for sale at Stanford and ew York; and, of course, the Stanford Instructional Television Network which has sold videotapes in Oregon and in Japan.

(more)

V. STANFORD'S GOALS, ADVANTAGES AND OPPORTUNITIES

Goals

The primary, understated goal of any college or university is to survive.

Despite the expressed attitudes of a few the continued existence of higher institutions of learning is dependent on students to teach.

In order for an institution such as Stanford to enjoy freedom, exclusivity, the high quality of students it wishes to instruct, and the stated and actual excellence of professors with which to teach, Stanford must make certain--constantly--that what it is teaching and the way it is attempting to motivate and transmit is optimal and applicable.

"Stanford is not going to become a trade school" a few have always stated and kept on saying over the years. Hopefully Stanford is a trade school, in spite of the term. Stanford is, and hopefully always will be, as Governor Stanford put it, "an opportunity for the individual to attain usefulness in life. It is primarily a practical school where learning leads to practical ends."

In addition, therefore, to attracting and keeping talent and resources, a goal of the University is to be a responsible repository of archival materials and a source of practical as well as theoretical ideas.

To achieve these goals, many universities and colleges have recognized a new goal as not inconsistent nor contradictory to their charters or traditional structures They have reached beyond the established boundaries. And, in some cases, this reaching beyond is helping to solve some of the problems in meeting and improving the primary goals, causing internal efficiency and a generation of income.

And one of the tools is technology.

Media or instructional technology, quite simply is a treatment It is not a solution in itself, but merely a means. It is a means of transmitting information, improving the speed and ability to learn, of emphasizing, supplementing, augmenting, preserving, and, in some instances, reducing costs.

Media has the capability of causing revenue to return to offset initial hardware and of producing a profit. And efficient and effective use of media carries the potentiality of improving the quality of life--of making this a less alienated society and world.

Today a few are engaged in the possible, positive potential of media, and many others are working on the mechanics. Soon we may have push-button capability from bedrooms to research bunkers

But just should there be instantaneous access to anything in the Louvre or the Library of Congress, should there be wired cribs and baby carriages, tombs and tombstones, where would Stanford be?

Oxford will always be Oxford. Will Stanford always be Stanford? The top four, but whose list?

For Stanford to use media and for it to be of any worth, considerable focus and planning are required. Without emphasis on content as opposed to equipment, without concern as to quality as opposed to being part of the pack or the first with a new system, the technologies will make little difference. Stanford would have access but little meaningful utilization At Stanford today, few are placing attention on the mission, the message, the medium most applicable and the best format.

With any luck Stanford will always be Stanford. It will have its hills and probably a few Stanford prize-winners wandering about, waiting yet for someone to ask the right question.

But will Stanford attract the students it wishes to teach, attract and keep the best professors, receive small and large donations from nostalgic grads, friendly industry, foundations, government, and the like?

Today some students are accepted at Stanford who cannot afford to attend. It is possible that tomorrow there may be students who can afford to go to Stanford but who will choose to go elsewhere

For example, if a high school applicant were to see a well prepared film of the land, the people, and the facilities of one institution and has only the paper representation of Stanford, might that more visually oriented student choose another institution than Stanford?

If the successful applicant learned he or she would be awarded not merely the sheepskin but the opportunity for a well-coordinated continuing education program for the price of tuition, would the student choose d?

If one of the colleges of the applicant's choice offered a rebate or a reduced price of tuition if he chose to take some courses by videotape with tutors, while Stanford might offer the same old live lectures on campus-wide closed circuit television or outdated videotapes, would the applicant choose Stanford?

If a student knows he desires and can receive videotape instruction on classics, copyright law, or playwriting, even though these courses might currently not be taught at a given institution, would he choose Stanford?

Will the undergraduate be satisfied with Stanford if it fails to offer insights into people and their professions by means of videotape career planning programs?

Would a Ph.D. candidate choose Stanford if it offers no practical experience in instructional technology or meaningful media production? Will those who either must work or elect to have work experience while in school choose Stanford if it steadfastly focuses on research and the debate of whether it is "going to be like USC"? Will the engineering or medicine applicant choose Stanford if he has equal talent or interests in the arts and Stanford gives these areas a secondary role in importance?

(Music Prof. Edward Colby states doctors are the largest non Music users of the Archive of Recorded Sound; Drama Prof. Wendell Cole states engineering students felt elocution was so important to their professions they make up for ¼ of the drama students.)

And, not to be overlooked, will professors choose Stanford if there is no policy on copyright, no credit for innovative teaching, no chance for producing timely, lasting, quality courseware materials, no facilities for collective or independent presentation, and no chance to illustrate by media the professors is worth tenure?

Will professors choose Stanford if there is no active repository for his life's work, no possibility for profit or positive public service, no efficient means of videotape exchange with other institutions information, theories or laboratory experiments?

Will alumni continue to listen to canned lectures and appeals when they might prefer a good film illustrating improvements needed or improvements made by previous donations?

Can any university or college count on a continuing stream of donations and grants for doing the same old thing?

Webster's New Collegiate Dictionary may still state the first definition of college to be "a body of clergy living together and supported by a foundation." But foundations are looking to institutions which help themselves.

Today foundations are looking at institutions which get support from alumni and which offer something in return—not just a "Portable Stanford" or a "Day College," but opportunities for cassettes and clinics of continuing education and relicensing qualification programs.

(It is reported that in California nursing and pharmacology already have relicensing requirements through continuing education programs. Law may be next. A number of California bar associations already have instituted continuing education programs. For medicine it will probably be a close race between relicensing requirements and socialized medicine.)

And foundations are looking at institutions which recognized the value of and offer practical experience along with instruction. And, needless to say, all sources of support are looking at institutions which are concerned with efficiency, effectiveness and applicability—as well as community and public service needs.

(Note the Ford Foundation grants to the State University of Nebraska for software, federal grants to television programming at the University of Virginia. Software is expected to continue to receive a greater portion of overall Departmental resources than does hardware. *Telecommunications in HEW.*)

In the future, Stanford will have a "Sesame Street" generation with a credit/profit minded faculty on the one hand and an alumni and source of grants on the other which will view the University's role and responsibilities with eyes different than it presently may be viewing itself.

So, what is Stanford willing and not willing to do? Prof. William Massy stated "the University is interested in developing new methods of teaching." And he stated "the University is not prepared to make Stanford an Open University."

However, in the "abstract" of the plan for a Stanford experimental cable communication system, it is stated:

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"Education is a labor-intensive industry, and while labor costs are rising, technological costs are falling rapidly. The success of the British Open University and the Chicago Junior College System encourages continued research.

The Stanford system would be intended for *research* and on-campus instructional use, and would not commit Stanford to an operational open university."

But isn't Stanford already an open university? Just like British Open University, Stanford uses the mail, the telephone, radio, videotape, closed circuit television, and in its overseas campuses, alumni organizations, and off-campus clinics Stanford is functioning somewhat the same as British Open University.

The British Open University Director of the Institute of Educational Technology, Dr. D. G. Hawkridge, who was at Stanford in the summer of 1973, repeatedly emphasized that Open University makes minimal use of television. Its success in the U.S. as well as on the British Isles—to the point where it is now giving grants in the U.S. for instructional use of courseware materials—is due to the mails, the telephone, radio, and one-to-one communication in learning/teaching clinics.

British Open University is primarily a package of self-sustaining parts—outlines, summaries, books, questions, etc.—of which television is an incidental part. Professors have less of a say on content and format for television than the producer, and those who teach on the tube are not necessarily the leading authorities in that field.

Production and programming for any form of television is far more than pointing a camera. And it is exceedingly expensive. $25,000 for one hour of production for "Sesame Street."

The Aspen Notebook on Continuing Education points out where the emphasis must go:

"While a great deal of money has been invested in the construction of ITV [Instructional TV] facilities and the purchase of equipment, no corresponding investment was made in the production and implementation of education programs."

Two-way television has to do with interaction—some of it live, much of it taped, edited, analyzed, and with feedback. Perhaps the best institutional opportunity for two-way television is in South Carolina, the Corporation for Public Broadcasting consultant Nate Katzman reports, where regional clinics assist in probing the problems and seeking solutions. Countless communities and institutions, too numerous and too diverse in efforts to mention, are using the new technologies (Sony Portapak)—sharing, participating, becoming involved. Beyond the importance of these activities in themselves, the success of these efforts is dependent on production expertise—not research or problematical expertise—for wider import and distribution.

In television, if the message motivates, there is little need for instantaneous response. We have access, by phone, letter, or action. If the message motivates, people will do something about drug abuse, bad government, nutrition, and the rest. If the message motivates, people will dig that trench, build that wall, run for politics, or become a professor.

Stanford already has two way cable communication in the Stanford Instructional Television Network (ITN). What has been the result?

Engineering Dean William Kays states "the talk-back capability is three times as expensive to implement. Most of the faculty (Ken Down reports many industries, too) felt the talk-back feature was not that valuable and was less effective. If you remove the talk-back feature it doesn't make any difference whether the course is live or videotaped."

This raises the final questions: Isn't Stanford's greatest value in that it is small and selective and can afford personal interaction? That Stanford doesn't have to educate the people of the state or use closed-circuit television on campus just to accommodate the many? Isn't television's use by an institution four times as great off campus as on? And can't this be done more effectively by putting the emphasis on quality production of videotapes and videocassettes?

If frame-grabbing and other devices relating to television are so important, why haven't they been developed by industry—commercial, public or cable television which would benefit the most? If two-way cable is so important, if it will revolutionize communication systems, why hasn't a consortium of industry and cable operations engaged on its own or with a university in research on this area?

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In some ways Stanford is too much the clergy supported by a foundation--too much a monastery seeking to protect a formula. Too much a research institution not interested in instruction. Too much the game refuge not conscious of the surrounding community. And, not to be facetious, too dissimilar in view from the monastery which had a good formula--Benedictine--carefully protected it, and at the same time went public.

The University must decide whom it wishes to teach and whom it wishes to reach.

It must decide what it wishes to inform and with which medium and format.

It must decide that why it wishes to do anything is a matter of importance not only to its existence but possibly to the welfare of the community and nation.

And it must focus and make priority decisions now.

Advantages

1) Stanford land is its chief advantage, not only because of its beauty and that it is income-producing, but because of its size and location. There is room for careful expansion. If, because of a lack of communication between the University and the architect and engineer, the Medical Center does not possess ample intensive care or renal care facilities, appropriate morgue or waiting room facilities near those areas, Stanford merely can build another Medical Center.

Stanford is located near a center of culture but is not smothered by it as are many institutions today. More important, the community and industry surrounding Stanford have developed largely because of Stanford University. Stanford is the "heavy" amidst perhaps more colleges and universities than any other institution in the U.S. But it wouldn't matter where Stanford is if people continue to come to it and if all communication systems were interconnected. Production can take place and programs can emanate from Stanford as well as anywhere else.

2) "You can't disassociate men from their institutions." Stanford's second greatest advantage is its people, not only the prize-winning professors but the personalities. Stanford is a place people like to return to, take rest in, seek the stimulus of others, and from which to make public statements. Stanford's advantage in people is not limited. There are the graduates who not only have remained loyal but made valuable contributions to society.

Just once, for example, Stanford might ask its graduates and friends for something besides donations. From Stanford graduates the University might learn which professors made the greatest impact, and which styles or techniques helped motivate. Stanford might ask what it might offer for life long learning opportunities, continuing education courses, or relicensing requirements, in various media, for use in the home, at a clinic, or association facility.

3) Stanford has the value of time on its side. It hasn't made the mistakes of other institutions in acquiring and concentrating on equipment. The hardware is becoming somewhat stabilized and predictable, and the costs are decreasing.

As the number of students is decreasing, the costs of education are increasing. State colleges are increasing the price of tuition.

And before the arrival of the "Sesame Street" generation, Stanford can observe other factors. Education and careers are not linear. Work schedules are changing. People are not making one company nor one career their life's employment. They are seeking the personal comfort and security of continuing stimuli of learning.

4) Stanford has the advantage of being a memorial university, well endowed, private and nonprofit. It has the right to educate and reach a select public, not a duty to educate and reach all.

Because Stanford is private and nonprofit it can offer employment to its students in a variety of fields, including media. Stanford can produce things at a cheaper cost because it is private. And because it is private it can be involved in commercial enterprise, use industry, or make contracts with other than state resources with state controls.

Education (with a capital E) does not have to be separated from private enterprise--from selling to individuals, industry, institutions, cable or commercial television. The only difference, as many have mentioned, between a nonprofit and profit-making organization is merely what you do with the profits.

Opportunities

With time, land, and people--as well as status--on its side, Stanford has many opportunities to make a difference in a pretty desperate world. If this is becoming a "post industrial, knowledge-oriented society," as Prof. Alvin Parker has written, Stanford has the opportunity to address itself to a special audience--an audience which includes individuals and institutions, and an audience which not only desires and needs what Stanford might offer, but an audience which is capable and willing to pay.

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Without acquiring or allotting substantial new funds, Stanford can use available talent, resources, and facilities. . .everything from what Hoover's Arlene Paul describes as "the great potential here," to Prof. Colin Pittendrigh and his fruit flies, to the Stanford ITN.

Stanford can explore cable hook up possibilities with other systems. "If there were a consortium of cable television operations," Director of the Stanford ITN Ken Down states, "it would take $1,000 to put up a receiver/antenna converter. . . .

"Technically speaking, it would be simple for our broadcast signal to be received and distributed through cable systems within our area of coverage Or, tapes could be furnished for playback over cable systems."

There are the facilities within industry on Stanford land and nearby which are engaged in attempting to accomplish the same things Stanford is, except, as Prof. Paul Hanna points out, they are not doing very well.

There is the Catholic Archdiocese of San Francisco (in Menlo Park) which reaches 50 schools from San Rafael to San Jose. (The Catholic Church and the Federal government—at war colleges and for officers' training—are the biggest users of instruction technology.) (Important: See Appendix C).

And there is TeleprompTer.

TeleprompTer is the largest, the most aggressive, and potentially the most successful cable operation in the U.S. TeleprompTer has been accorded high praise by Amos Hostetter of Continental Cablevision for TeleprompTer's "frontier efforts." For example, TeleprompTer has made a joint arrangement with Oakland for work with the black community.

Stanford is in Santa Clara County and Santa Clara County has TeleprompTer. News Director John Van Ouwerkerk stated his Santa Clara TeleprompTer operation is "very interested in Stanford."

In New York, TeleprompTer's Manhattan Cable President Joseph Groth was asked about institutional underutilization of cable educational channel options Mr Groth replied he couldn't understand why educational institutions hadn't been more aggressive and hadn't taken advantage of the federal requirements for educational options. Mr. Groth stated: "There is no reason an arrangement with Stanford couldn't be made. We would go half-way and put up half the funds."

Isn't the first lesson in every book on the subject of instructional technology to make use of existing facilities?

Perhaps this all boils down to whose airspace. Teaching or research. Making a difference and potentially a profit, or doing the same old thing.

Some of the gadgets on a new Cadillac eventually may wind up on the VW, but which costs less, causes the least trouble, is just as effective if not more so, from the very beginning?

Policy decisions have to be made with an eye to profit as well as acquisition for research. Whatever the possibilities, for Stanford to achieve even its most minimal goals—as well as to prepare for the unforeseen—Stanford should use to advantage its talent and resources.

Before any new system—which might even be outdated by the time it is built—Stanford must satisfy immediate needs. As one letter to the editor of the *New York Times* recently stated: "If the educational establishment doesn't clean its own house, there isn't going to be left any house to clean."

VI. FIRST STEPS

1) Inventory Buildings

"Stanford needs to put resources into assaying its resources." Prof. Patrick Suppes.

"I have the general impression, having lectured both in the Herrin lecture rooms and in Dinkelspiel and in Cubberley, that the audio visual facilities at Stanford are really quite deplorable Cubberley is really quite impossible, and while the projection facilities in Dinkelspiel are adequate, the blackboard arrangement is really quite silly." Prof. Colin Pittendrigh.

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An inventory of buildings needs to be undertaken to establish a) seating capacity, b) acoustics, projection capability, and lighting, c) whether there are or should be conduits for receiving and producing.

The inventory needs to be accomplished for immediate as well as potential needs Presently it is needed for essors who complain they cannot locate a room with the proper equipment or because "Dinkelspiel is a crummy e in terms of projection." (This writer is an old graduate; wasn't Dinkelspiel designed for another purpose than lecturing?)

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An inventory needs to be accomplished so that when Prof. William C. Dement gives a lecture on sleep it doesn't have to take place in the church and scattered through nine additional rooms.

It needs to meet the requests of the Alumni Association's Della Van Heyst for rooms for summer conferences, or for meetings such as those conducted by the Center for Artificial Intelligence.

The inventory can assist with meeting the needs of large lecture classes, such as the core courses in biology with 400 to 500 students. Playback of videotape courses should not displace others wishing to use the facilities in one place, such as presently occur with the Music Library at Meyer Library.

Also, videotaped portions of core courses could be effectively used with teams or teaching assistants in smaller facilities, with tapes capable of being stopped for questions and discussion.

2) *Inventory Hardware*

"There are many things we could be doing better with the present equipment." Engineering Prof. John Linvill.

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The University needs to know what hardware exists on campus relating to instructional technology, whether it is for playback or production, where it is and who owns it. A more complete inventory than the one attached should be made not for the purpose of removing this equipment from a professor, department or school, but for the purpose of maintenance, possible increased circulation, and improved utilization.

3) *Inventory Software*

"The real need of the University is a better system of indexing and cataloguing software." English Prof. Lawrence Ryan.

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Many of the slides, charts, maps, graphics, and films which individual professors and departments have purchased and collected over the years are underutilized and possibly not maintained. If these were inventoried and catalogued they could be of use to others, especially the interdisciplinary courses. For example, Romanic Language Prof. Ronald Hilton's tapes of Latin American dignitaries have an historic, archival value as well as language purpose.

The "utter despair" over the system of cataloguing art slides can be solved if it is remembered, as Prof. Anthony Raubitschek pointed out, "there is no perfect system." The point is to make use of the resources, not to battle for a perfect system.

The AP pedestrian approach may have value. Every color slide is reduced in black and white and reproduced with its description a multiple of times on a 3 by 5 card. The card is then cross indexed as many times, in as many ways as are necessary. Announcements of additions to the index are circulated (along with the slides to AP subscribers). A master file of copies of all slides is available for precise viewing.

The Hoover Library is presently indexing its 3400 collections, working out the computer bugs for an Archival Retrieval Information System. It is presumed this catalog will contain information concerning source and gift restrictions. A further inquiry might be made to some donors as to whether the gifts might be used for instructional purposes by Stanford or for inclusion in software for distribution elsewhere.

"Various people might use the software if they knew where it is" is a comment expressed by many. There are materials in the Archive of Recorded Sound, such as sounds of snapping shrimp. An inventory might assist a wide range of departments from duplicating purchases, rentals, or production efforts. If the archives were indexed, and, of course, funded, they would be an attractive repository for additional gifts, even from professors whose collections tend to die with the individual.

Maintaining its archives is one of the primary responsibilities of any institution. Concerning Stanford's presently unfunded Archive of Recorded Sound, one professor remarked:

> "Stanford's archive is potentially as good as Yale's, but the actuality is very low. I have 10,000 operatic recordings which are rare and some of the best in the world.
> "I won't leave them to Stanford because there is no chance the collection will grow, be maintained or well-kept.
> "And the sad thing is that besides my desire to have Stanford have this collection, giving it to the University would be a benefit--a tax advantage to me and my children."

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4) *Standardization, Justification and Accountability of Purchase.*

"Anyone spending University money must have great care to buy equipment with reasonable compatibility."—Communication Prof. Lyle Nelson.

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Similar to Stanford's computers, an individual or office within the administration should oversee the purchase of all equipment relating to the purchase of instructional technology.

Additionally, any new hardware or specifications for extant or proposed buildings should be discussed thoroughly among the professors who use or will make use of it; the school, department head or administration official who authorized it; knowledgeable on or off campus media experts; and the architects and engineers.

5) *Teaching Clinics*

"Stanford gave up teaching instructional technology four or five years ago." Education Prof. Richard Still.

"There is a pretty strong interest on the part of the faculty." Education Prof. Robert Politzer.

"...if someone can demonstrate." Language Prof. Joseph Van Campen.

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Do teachers know how to teach? High school and elementary teachers are supposed to. But do college and university professors? Probably not. At least not until after they have taught a number of years.

Law and medical school professors, for example, are practitioners who may possess the equivalency of Ph.D.s but in most instances have had little structured training in the art of teaching and scarce opportunity for criticism or self-appraisal. On the other hand, few business school Ph.D.s have had practical experience in business.

Most professors have never seen themselves teach, much less any of their colleagues.

> "It was a great shock, on becoming a teacher, to discover that you've never really learned a subject until you've taught it.
> I am of the persuasion that how to lecture—that type of teaching—cannot be taught; it is a reflection of your personality."
>
> Prof. Norman Wessells.

The best instructors are probably natural, honest individuals who, in the pleasure of learning to know and in their pursuit of a subject, transmit enthusiasm and consequently motivate.

Some of those acknowledged as superior teachers have remarked they are "good actors," while others have maintained "I am not here to entertain." But very few simultaneously are excellent teachers and superlative researchers. As some have stated, "professors today suffer from an identity crisis."

The differences between the knowledgeable expert and the professor with personality who motivates are magnified with instructional technology. On videotape, television, or film, even the professor who may be vibrant in class often appears cold, stilted, and less than stimulating.

Christopher Lehman of Time/Life Films, which distributes the BBC "Civilisation" and "America" series, reports Alistair Cooke's personality and enthusiasm in delivery account for greater audience receptivity than the productions with the scholars.

Also, Open University television programs often use a charismatic instructor instead of the leading figures in the field. For the State University of Nebraska (SUN) programs, John McBride suggests that their potential success will be because "the producer outweighs the professor."

At Stanford, those who have been videotaped or filmed unanimously have described "how extremely difficult it is" or "how painful it was to see myself." It is for these reasons, plus lack of foreknowledge of the problems and potential, independence loving professors often have been reluctant to utilize or employ media.

The various foundation and commission reports on instructional technology list apathy, fear of replacement, and unjustified expectations and resultant frustrations as the primary reasons instructional technology has been employed less often and less effectively.

The reports bemoan the grants and expenditures on hardware which has gone unused. (This writer had been told of closed-circuit campus television at several institutions, only to arrive and discover the equipment had been in use for two or three years.) The reports offer few guidelines for successfully combating the situation. Nevertheless, one hears of a variety of methods—including withholding paychecks or the Oral Roberts' demand (with

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pay) that all faculty members spend one summer preparing courses with audio-visual, after which they had to explain and justify their use and non-use. Oral Roberts, incidentally, is often mentioned as one of the institutions making the most extensive and effective application of equipment.

At Stanford there is probably substantial *apathy* concerning teaching aids. These are well-justified. Lack of knowledge of available software and hardware, difficulties with facilities and personnel are problems which nevertheless can be overcome. Apathy can be overcome because there already is sufficient interest in exploring and applying. As Humanities Prof. Clebsch stated, "we need audio visual for the improvement of teaching," or Prof. Ralph Hester "it is dynamic, meaningful communication." There is enough interest in this for others to be interested. Several faculty members remarked that "if others see what we are doing they will follow."

Fear of replacement at Stanford is also justified. In a research-oriented institution such as Stanford, excellence in teaching is not given equal credit to research as a criteria for tenure. Were all professors videotaped, for example, many would expose their lack of dedication and preparedness in the art of teaching. At the same time, however, videotape could demonstrate which professors were fine teachers and deserving of tenure.

A substantial number of Stanford professors did not view videotape or use of instructional technology with fear of replacement. Many who know the activities of other institutions, who have been a part of independent education programs, or who have listened to the requests of their graduate students, have explored external distribution with value of purpose and chance for profit.

A not atypical comment was made by Chinese Language Prof. Kao who sees the need for language maintenance tapes: "We think audio-visual helps improve teaching and can save time rather than replacing."

Professors who fear replacement also might be informed that the Stanford ITN, with the sales of videotapes, has helped generate salaries for 24 engineering faculty.

Under Stanford's present set-up, *unjustified expectations and resultant frustrations* concerning time and trouble spent is also a valid impediment to use of instructional technology. Several professors and departments have attempted to use personnel or facilities on and off campus only to learn their idea couldn't be translated, and certainly not at the specified price. A knowledgeable intermediary between the professor and the producer could help satisfy and define needs and stem the rising expectations and frustrations.

One of the best ways, therefore, to increase efficiency and effectiveness with use of instructional technology is, first, a system of *credit for innovative teaching*. ("In a recent survey of 1000 faculty members at six diverse colleges and universities, 92% stated that teaching effectiveness should be quite important or very important as a criterion for advancement. No less than 72% of the respondents felt that their campuses should have formal procedure for evaluating teaching." Manual of Information, Faculty Characteristics Questionnaire, Berkeley, California, 1970.)

University of California President Charles Hitch, through the regents, for the year 1973-74 has allotted $400,000 to individual faculty members as Undergraduate International Improvement grants for innovative planning and projects--$150,000 the previous fiscal year went for media projects.

The second approach is *teaching clinics and workshops*, similar to those conducted at UC-Santa Cruz, which included groups of 20 with a leader, an artist, and media specialists. At Santa Cruz, Prof. Thomas J. Karwin, chairman of the President's Advisory Committee for Learning Resources, suggested that an often successful approach is to charge outside agents with responsibility for conducting such seminars.

There are, for example, the National Medical Audio-Visual Materials Laboratory (Georgia) which for two to three years has conducted instructional workshops; the Prentice Hall Teacher Competency Development System; or the American Management Training the Trainer program; or the California State University at Northridge mini-teaching program of Don Sparks. The highly successful Michigan State Educational Development Program was an in-house effort to make media people considered as colleagues rather than as technicians.

Without going outside, Stanford could have a clinic or series of workshops for those interested (especially including teaching assistants) which would demonstrate available software and hardware. Sufficient interest is already manifest to make this effort strongly worth pursuing.

Edited portions of extant Stanford videotapes could be demonstrated, especially including those which employ graphics. In addition, professors who are established as superlative teachers could be taped, perhaps with one camera on the professor and one on the students.

"The net time to boredom," as Prof. James Gibbons puts it, could be measured and observed. It is reported Chemistry Prof. James Collman already has suggested this. Engineering Dean Kays reports provisions have been made for teaching clinic opportunities in the new Engineering Building.

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A teaching clinic or series of workshops can assist in the growing dialogue concerning media. It can aid integrating materials into the total course, filming laboratory experiments which are too expensive to repeat or too difficult to see by many, preparing interdisciplinary materials, helping in ascertaining what is needed and what is available.

As Chemistry Prof Richard Holm stated, "the use of instructional technology is inevitable." The use of instructional technology, as Prof. James Gibbons and countless others have pointed out, "increases the important interaction time for the professor and student." And as Prof. Julius Greenberg commented, "the use of film is important for the teacher as well as for the student to know."

6) *Instructional Development or Media Consultant(s) "Personally, I'd like to see what happens elsewhere." Statistics Prof. Herman Chernoff.*

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Stanford needs a consultant or a compatible group of media consultants whose responsibility it will be to know what is going on at other institutions and with industry. The consultant(s) could advise concerning programs and products, software and hardware, off campus and on. (This writer has heard reports of substantial funds and efforts in the planning or production stages for quality software at a variety of sources throughout the country. A professor does not always know what he wants, have the time or the ability to tell by the title. Many materials, while not applicable for in-class use, are worthwhile to students at their leisure.)

The individual or individuals might be able to serve special interests--report, for example, that Menninger Clinic is making videotapes which might be of worth to psychiatry, etc.

The consultant(s) could be a liaison between the professor and the producer, and could assist concerning stabilization, compatibility, and justification of materials.

This office could advise concerning efforts and opportunities for Stanford to produce software, for class instruction, and for possible external distribution. It would assist in approaches to the University and staff from industry--which Business School Dean Robert Simon reports are increasingly active, not passive, concerning continuing education programs. And this office could be a referral concerning problems of copyright. (USC Professor William Allen reports his university considers institutional technology so important that a position equal in pay to a professor has recently been created, entitled Instructional Developer.)

7) *A Media or Learning Resources Center*

"I favor centralizing."--Prof.Patrick Suppes.

"We would be in favor of centralizing these activities."--Prof. Norman Wessells.

"I'd like to tape all core courses and have tapes available on reserve. Some students don't function well in large courses. If he could go to a library to see tapes it would be invaluable. If we had a facility by which to do demonstrations and other experiments for large numbers of students, it would be a savings in money and time."--Prof. Craig Heller.

"If there were a way to produce, I might make use of it."--Prof. John Brauman.

"We need a support service."--Prof. Jonathan Roughgarden.

"If it worked as well as SCRDT we'd be in favor of centralization."--Law School Associate Dean Leininger.

"Provision of a center providing demonstrations of available equipment (lepidiascopes) for benefit of new (and old) faculty and a supply of such equipment (including videotapes) for improvement of teaching, would be most useful. I keep getting inquiries about our usage, but nothing useful happens."--Mark Edwards.

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Most of the Stanford professors interviewed favored a centralized facility or office which would be an integrated service or support activity to the faculty.

Although similar suggestions previously have been made by others at Stanford under different titles, the center described by this writer would not be for research and would not originate nor be controlled by any school or department. The center would be on a par with but not a part of the library. It would be responsible to the academe and the provost.

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Certain facilities, such as the Medical School Instructional Media unit, should exist separately. Some operations, such as Plant Services' audio-visual unit, organizationally or physically, might be a part of such a center. (This writer presumes the SCRDT production facilities will be released from federal grant restrictions. Education Prof. Politzer stated "it is too early to tell" about SCRDT, which so far is only slightly used. If it is too early to tell, the SCRDT did not result from a well-defined, urgent need. Also, if the new Law School building is dependent on SCRDT, perhaps all the federal funds for hardware will finally find some productive use.)

The center should be, as Engineering Prof. James Adams described it, "as easy to use as chalk." But, as Prof. Lyle Nelson suggested, "with direct budgetary charges to the department."

In addition to being an information and retrieval source, the center might include viewing facilities for everything from slides to film. As Library Associate Director Robert Golter suggested, "audio-visual works best if it is flexible, individual and convenient."

> "I was especially impressed by the idea of creating a film library where a student may view at his convenience as part of an assignment. I would also be happy if there were classrooms especially designed for combining audio-visual methods with traditional lecture and/or seminar approaches."—Prof. Winston Davis.

(It might be recalled here that limited facilities for this purpose exist presently at Meyer.)

Similar to Meyer Library, the center would have conduits compatible with and in preparation for dial access, etc.

A part of the facility or organization would be for production—reproduction of slides, production of graphics, experiments, documentaries, etc.

Were any produced materials to be distributed externally (the biology professors especially believe their materials could be distributed successfully at other institutions), and should profit accrue, similar to University Press, the profits would go in the name of the trustees.

A close examination should be made of Brien Benson's organization of the Hoover Institution Press, which he describes to be "the only private library in the nation which handles the nuts and bolts." In other words, if faster, cheaper, better production is available on the outside, individual contracts should be made whenever possible. (Even the AP works this way.)

Media production as opposed to hardware acquisition is now beginning to receive attention by foundations, the federal government, and institutions. (Ten percent of the Chico State budget goes to the innovative software development work of Royd Weintraub's TV operation.)

Equally importantly, media production is predicted to be a massive industry in terms of profit and employment possibilities. Stanford's Learning Resources Center could aid in practical experience for students while in school, and these semi-professionals could be a cost-savings factor to the University as well as making for themselves an edge on the marketplace.

Close examination might be made of Bob Heinrich's Indiana University media center; Stewart Hyde's San Francisco State media operation; James Brown and Jerrold Kemp's fine operation at San Jose State (the personnel are advanced degree holders, not high school drop-outs, as media people are so often presumed); and Doug Montgomery's KZSM of the College of San Mateo which successfully has been in the telecommunications business for more than a decade. Doug Montgomery states his operation has been "quite successful in getting students into good jobs from the telecommunications media resources program," which has 250 students in 25 sections of 17 courses, day and evening.

8) *Copyright, Control and Compensation*

The subjects of copyright, control and compensation are potentially the largest, lasting headaches relating to media. A few universities already involved in media production and distribution, such as Colorado State, have established policy relating to these subjects. It may be some time, however, before adequate policies will be worked out, primarily because the federal copyright laws are inadequate. (Stanford might consider teaching a course on the subject of copyright.)

Stanford already is copyrighting software. Clive Liston and Niels Reimers are working with the Dean's Council on these matters, as well as are others, such as the Business School. But this writer, in talking with individuals at Stanford and elsewhere, became aware of symposia and policy statements throughout the U.S., and wonders whether there is a consolidated effort concerning this matter by Stanford, within and without.

At any rate, Stanford, similar to other institutions producing videotapes, already has incurred a liability. Kenneth Down reports that federal requirements of two copies of each videotape program sold and distributed, plus penalties, means Stanford thus far has a liability of $9,000.

The present Stanford Television Network compensation and royalty arrangements among Stanford, the faculty, and the distributor appear reasonable. Stanford, the faculty, and the distributor get a fixed fee or percentage, and the copyright goes to Stanford.

Several professors, such as Medical School Prof. Emmet Lamb, expressed the opinion the University might have the right to buy into a professor's course package or program, similar to the way it is done for textbooks.

9) *Marketing and Distribution*

"This activity is foreign to the central thrust of the University."—Prof. James Van Horne.

"There is no marketing model."—Prof. Harper Boyd.

* * *

It is probably true that surveying, marketing, and distributing software materials are areas foreign to the thinking of the University. However, in all operations, from printing and publishing to petroleum, the real profits lie in this area. Once again, a close look might be made of the Hoover Institution Press, the Great Plains National Library, or Mendel Sherman's Indiana University Audio-Visual Center.

SRI or a consortium of friendly industries might be able to undertake the surveying task—which is of primary importance--on a limited or one-time basis. There are other opportunties, such as Edu-Cable which proposes to lease pay-cable channels and distribute courses developed and produced by colleges and universities.

Enough Stanford professors believe their materials "would go very well elsewhere" (Prof. Norman Wessells), or that "there is a lot of potential for documentaries; there is a frequent request for exploration with continuing education" (Prof. George Thompson), and that they "could make use of videotapes of lectures to trade information with elsewhere" (Prof. Vincent Cerf) that Stanford should not ignore its opportunities. Stanford won't know the demand until it enters the marketplace, and its opportunities for profit outweigh the fear of loss.

Stanford's first step in this area might be with the Alumni Association members. It was reported by the Alumni Association that its members had been polled concerning software they might desire "for use in their spare time."

Everyone already has written enough checks for coffee table art books which have (justifiably) gone unread. People want something more than this gratuity.

It is, as it has been written, implicit that Stanford graduates are engaged in life-long learning. People want some structure to their spare time. McGraw-Hill self-paced modules, for example, haven't worked out that well. There is not only the likelihood of relicensure of degrees, but there is also the likelihood—as Dean Kays and others have stated—that people want more than the degree. People can learn individually and do, but they also want structure and standards by which to judge themselves. They want courses and programs which offer personal interaction.

Stanford already has a ready market in its alumni and it has a head-start with its well-organized, loyal 60 alumni organizations throughout the world.

10) *Consortia*

Stanford already has several consortia: the industries in ACE and the industries which help fund KZSU and the industries and individuals who can be relied upon to keep the University going.

It is possible on a limited risk, limited commitment, one-time only basis, Stanford could begin to tap the potential. It could look first at the nearby community and friendly corporations (Stanford Research Institute, Hewlett-Packard, Westinghouse Learning Center Corp., etc.). There might be a trade-off of facilities (as presently exists) and expertise.

A fair number of colleges have consortia for production of software—a long-term profit area—and some (the Los Angeles Consortium) appear to be working well.

Throughout the U.S. there is beginning to be a consortia of colleges for the exchange of courses. There might be an exchange between Stanford and Golden Gate College (Golden Gate is a member of ACE)—Stanford Business School courses for Golden Gate patent law instruction, for example, or Stanford late Victorian literature for [illegible]her institution's colonial American literature.

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In terms of priorities, these preceding points should be examined and satisfied before considering television, which is only one component of media. The Learning Resources Center, for example, could be a support facility for television.

The most important single quotient to successful television is competent, smooth-running support facilities—including substantial preplanning, preparation, professional and semi-professional personnel (which Stanford has to some degree already), and production expertise.

The support facility should precede television and be in operation long enough to work the bugs out. It should not be included in a package alongside television transmission nor be accorded second-class citizenship at the cost of the magnificence of television.

With a Learning Resources Center—or independently and without it—there are several areas which are highly important and which urgently need to be pursued.

11) *Stanford Treasures*

In Japan, "Living National Treasures" are select individuals declared by the Emperor to have maintained or enhanced an art—Noh, Kabuki, lacquerware, print-making, etc.

America has many elders who, after writing a book, receiving a prize, making a discovery, or leaving politics, are lost to society. Then the AP locates its obituary (often written many years before) and we learn the individual has died. Then we say, "Oh, but I though he was dead." In the interim between the demise from public attention and actual death, observations and perceptions are not sought nor recorded nor integrated into our perspective.

Stanford has a large number of Living Worldwide Treasures. These individuals should not be lost to upcoming generations at Stanford or elsewhere.

Wallace Stegner—to name one very alive individual—has been described by Fred Glover as a professor's professor. Wallace Stegner has been a profound influence on students and the arts. And he has even won a prize. Mr. Stegner may not always be at Stanford or with us at all. There are many questions which he might delight in answering for once and for all.

There are those who have chosen Stanford as a place of repose, such as the late Alexander Kerensky. One might even go through the woodwork of Kingscote Gardens. Besides Bruce Bliven, there must be quite a few who have seen and heard a lot and wish to share it.

There are also the visitors. This writer remembers Aldous Huxley at Stanford. He had forgotten quite a lot he had written but his perception of himself, his works, and the world will always be remembered.

There are the politicians who choose universities, including Stanford, from which to make important addresses, or the scientists who choose to come to the Farm to debate Vitamin C and the common cold.

Stanford's Treasures not only are on campus. A large number of Stanford graduates have adjusted well to their frequently abrupt, disappointing entries into the world beyond school and have achieved success and fame.

Of the graduates, there is David Packard, for example. Everyone has heard the story about the garage, but few have heard him tell it. Some graduates who might be interviewed would not have to make a bequest upon departing. A taped interview would be of sufficient value to receive dividends from generations to come.

Every individual connected with Stanford who was queried on this subject expressed strong support for the interviewing and preserving on tape certain individuals. "It would be flattering as well as valuable to call on professors to talk about their careers," was a typical remark and one made by Prof. Hanawalt. Reminiscing about Payson Treat, Peter Allen and Fred Glover commented how "Stanford lets its history get away from us."

Fred Glover has probably made a contribution in this direction with his one-half inch audio-tapes of President Richard W. Lyman, which may be the only recordings of many of President Lyman's speeches. (Twelve to 14 of these tapes have been turned into news stories, Glover reports.) But will the tapes be lost or stand up to the cylinders of David Starr Jordan in the Archive of Recorded Sound?

Mike Stillman's "Readings at Stanford" program is a more positive enterprise in the right direction.

But a much more conscientious, comprehensive effort needs to be made to record, tape, or film not only those individuals known worldwide or exclusively to Stanford, but the many who may not be widely known but have made a difference.

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Concerning the medium, one recalls the repeated apologies made by CBS for the fact the interview by Edward R. Murrow with Harry S. Truman (which was re presented at the time of the latter's death) was on Kinescope. While appropriate medium is important, sometimes it is less important—far less—than the quality of content. For CBS, that Kinescope was one of its best programs for an entire year—before Watergate.

Today, more than ever, we need insights into individuals, their characters and personalities, and the events they help shape. Nostalgia is not a fad. It is an expression of a nation's maturity and the need to understand present events, their precedents, and the desire to gain perspective on our times. (See Appendix D).

12) *Career Planning*

The interviewing of Stanford Treasures is valuable in and of itself, and it would have additional values for career planning—for the many who choose a profession because of a person.

It may be of interest that Ralph Keller, director of Career Planning, was the only individual interviewed who knew what he could do with closed-circuit campus wide television he could fill it. Keller stated an open house is the major inducement for entering freshmen and others to make use of career planning offerings.

Were the famous and those who have made a difference—on campus or in the private sector—invited to be interviewed or to make a speech concerning himself and his profession (perhaps with props, illustrations, or demonstrations), and were these taped sessions with students made part of a growing collection, these would be of lasting value of career planning, the archives, documentaries, or the news service.

This writer has known the value of the individual giving the view of himself—why he became interested in a subject and pursued the path he or she did. In interviews with Japan's Living National Treasures or with noted Americans such as the late Pearl Buck, the achievers were asked these questions and the taped responses in several instances are the only ones of that nature in existence by those individuals. They have been widely-circulated and distributed.

Additionally, these interviews with individuals in a wide range of fields would broaden the range of choices of career. The high percentages of students who wish to enter medicine and those who change jobs or careers after leaving school indicate much needs to be accomplished in this area.

Dean Kays, for example, might explain why engineering is interesting for women as well as men, or Prof. Lee Bach might describe the interrelationships in all professions, and why business school offers opportunities for independence and altruism the same as with medicine. Or Prof. Scowcroft might offer insights into language and law, just as Prof. Rathbun did with poetry and business law in the late 50s.

An opportunity for equal focus on the arts and the sciences (rather on medicine—a confusion of the two) can offer true balance for those in the future who may be given a chance to make a profession of their vocations and their avocations.

13) *Documentaries*

Many career planning and Stanford Treasures videotapes easily could be made into well-edited documentaries. Good documentaries, which include the past, the present, and the future, include notables and scholars, but are not written by them.

Prof. William Cohen, for example, does not direct, edit, or write the scripts for his films, although he does provide the initial idea. "I come up with the basic situation and then all through the production I check and make sure everything is factually correct."

Competency in production of documentaries does not even require this degree of professorial involvement. Just as for professors who learn a subject by teaching it, Stanford students also can learn a subject by trying to express it succinctly in a documentary.

It can be argued that many learn as much from viewing a good documentary as they do from a course. A *National Geographic* or Jacques Cousteau documentary, for example, similar to "Sesame Street," is difficult and expensive to produce. In attempting to instruct or relate information, however, an interesting format is required—just as professors have learned they must vary the pace and the material in classroom situations. An entertaining format encourages pursuit of a subject, independently, and thus is an important contributing factor in the search for knowledge.

With adequate production facilities and personnel, Stanford has a limitless opportunity to make a contribution to information and knowledge and to receive credit and profit. It must be remembered that the best documentaries have used stock footage. David Wolper and other documentary producers have used Hoover Institution black white stills which then have been animated and become an important inclusion in documentaries.

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The growing number of Stanford professors who have "been imposed on," or asked to contribute to documentaries, or who have worked as consultants (many times for token pay) indicates there is receptivity and opportunity in the production of documentaries.

Documentaries can be historical or problematical. Stanford should take advantage of its talent and resources in everything from the Hoover Library to Hopkins Marine Station, and music to medicine. It should refocus on historical and present social issues, similar to what the Communication Department is currently doing with the Medical School. Some individuals, such as Joseph Davis on food and nutrition, satisfy both categories.

And two final points on the subject of documentaries. It has been said of the documentaries on Stanford by Stanford that "the greatest thing about them was the cost." Well, perhaps the University should try again.

A fine documentary can save a lot of personal appearances and words, whether with potential applicants, entering students, or visitors to the campus or overseas branches. A documentary in two parts--one with historical, archival materials, the other focusing on the present and the plans.

Videotape documentaries can be a considerable cost savings factor as well as an inducement for funds. For example, instead of a team of Stanford administrators, trustees, professors, and student body presidents flying all over the place, a carefully prepared brief film might be as effective if not more so--with just one representative.

An alumnus in New York or Tokyo attends alumni conferences for a breath of the atmosphere of the Farm, first, and secondly to learn why more money is required and deserved.

Not to be disrespectful, there were times this writer and her companions expressed out loud the question why these individuals weren't back home doing their jobs and why we couldn't just as with the television, turn these individuals off.

Efficiency and effectiveness are appreciated from those from whom donations are expected (i.e., if you need money for the new Engineering Building show a picture of the slanting steps in the old Engineering Corner).

14) *Hard News*

The well integrated, organized, professional Stanford News and Publications Service has done an exemplary job. By continuing to be active in pursuit, Stanford can enter the videotape cable or commercial market and make important headway.

Many Stanford news releases have resulted in major stories in newspapers, newsmagazines, and television. Indeed, practically all television news stories emanate from press releases and published stories. But, as Spyros Andreopoulos has remarked, many stories which lend themselves better to film or videotape are lost or neglected.

Stanford can help "rehumanize" by pursuing these stories as 30-second cuts, one to five minute samples, or mini documentaries. By not waiting for the news but also by planning ahead, such as for historical anniversaries, Stanford successfully can enter a wide open market. The Victorian "sex poli" story, which appeared in the October 1, 1973, edition of *Time*, could have been prepared on videotape and distributed to KQED (which carried the story the evening it was released), and to local, national, commercial, or cable systems.

Stanford should prepare now for the eventuality of all cable operations being interconnected. At the present, though, Stanford can sell videotaped news releases to a variety of independent news organizations (Super-8, Sony, and one-half inch tapes are presently used on some television channels--and whether disk or via satellite, one medium can be transferred to another).

The independent news organizations are making greater and greater inroads into commercial television news operations and have a far greater potential in cable. There are the Kaiser TV Network, the UPI Television News, TeleVision News, TeleprompTer, and others. As it is suggested earlier, Stanford could work jointly with a large, potentially successful operation such as TeleprompTer, or independently prepare footage for sale and distribution by smaller concerns.

People in all walks of life are interested that another Kent State doesn't happen. They are interested in knowing what happens in their institutions of learning. Stories emanating from Stanford do not have to be about Stanford, though Stanford has enough individuals with stories to last it indefinitely.

Shockley, for example, is national hard news. If he makes the networks today from a Stanford press release, there is also a market for his picture and spoken words (as well as those of his critics). Also there are the colloquia at Stanford. A videotape of Szent-Gyorgi and Linus Pauling, both of whom are elders, has immediate as well as national historic value.

Filming or videotaping Stanford events is important for external distribution and as a record of its own. Future generations of Stanford students can see they are not so very different from their forebears, despite modes of dress. Portions of videotaped Stanford events could be made into a video yearbook, similar to that done by Michigan State, for sale to students and alumni.

Stanford's many opportunities to contribute to knowledge and social welfare via media don't have to be mentioned. One example might be worth making, however. In a television poll attempting to determine America's interest and awareness of the Space Laboratory, several interviewees stated they thought the names of astronauts were the names of actors, or that they "never watched that program but thought the children did."

Were Stanford to have interviewed by videotape Colin Pittendrigh, with or without his fruit flies, explained the importance of the experiment and its relevance to people's lives, Stanford could not only have improved public relations but informed and elevated. From the federal government to the future scientist there would be career focus and potential funds.

Commercial news organizations today cannot publish "all that's fit to print" or describe for everyone, everywhere, "that's the way it was." Instead of professors talking to themselves or at their television sets, if they shared their views concerning Watergate, Agnew, Cox, the Middle East, or any current event, they could break the current silence and create multiple views and dialogues.

At the present time commercial news organizations may tap a Hubert Marshall for regional representational comments on the constitutional crisis. Sometimes New York will send a crew to Boston to interview Paul Freund, if it is convenient, and sometimes New York will try to get its team in San Francisco to make the journey to Stanford.

The criticisms about the few who influence the many are well-founded. There are a relative few, although not necessarily similarly disposed except when under attack. In the future, hopefully, there will be more voices emanating from a wide range of sources. In the future New York may be nothing more than an electronic interchange.

Also, in the future people may use their television sets similarly to the way some use radio today (indeed, it is possible radio signals may transmit cable communications). If you want news, you turn to an all-day news station. If you want music, you turn to another. If you want a little of both and don't particularly care you turn to a third.

Today some people use television as they do the radio. They turn it on and move away. Others turn off the sound and watch the picture. In the future the TV tube may be a *tokanoma* in the room. Transmitted may be the art picture of the day. There may be video cookbooks with timers. The operatic performance may come on videodisk. There may be no sound but a collage of colors. Or there may be sound spectrographs done by Clara Bush. Between sound and sight there is a lot of room for creativity. As Professor Ralph Hester has pointed out, "a lot of language is not audial but visual." And a lot that is seen does not have to be verbal.

From the arts to design engineering, Stanford has many opportunities for making news with media. Stanford actively can contribute to making this a more meaningful world if it does not wait to see what media can do for it, but looks to what it can do for media.

15) *Peers, Professors, Politics, and the Arts*

Jack McBride of the State University of Nebraska has remarked that there are going to be relatively few centers for quality production. Nebraska is not a cultural center nor is it near one. Stanford is. Already a large number of university and college news organizations have entered the electronic communications field. (See Appendix E). But few approach the talent or resources Stanford possesses.

Were Stanford to concentrate on the premise that whatever is newsworthy is by nature interesting and should be interestingly presented, carry information and thus has the probability of being educational, Stanford can profit by its contribution.

For example, what about all the Mister Xs—the George Kennans—who are out there somewhere. Many are colleagues and friends of Stanford professors, and most of their thoughts and perceptions we will not know nor enjoy, even by the time of death.

Professors interviewing professors would be just as bad as the current style of newsmen interviewing newsmen. But professors such as Gordon Craig might assist in a dialogue with a friend, such as George Kennan, a produce an extraclassroom exchange which would be of value externally. A format such as William Buckley's "Firing Line" with the guest, the faculty, and the students has informational and educational value.

Also, since careers in life are not necessarily linear, videotaped discussions or seminars can help Stanford achieve true balance internally and give a wider range for balance in all people's lives anywhere. The M.D. who happens to be an artist is not that unusual, nor is it unusual that the musician also happens to be a mathematician.

Media employed by Stanford can do much more than try to fill with knowledge. By careful focusing on people, their predilections and professions, Stanford can accomplish what a professor tries to do and what media so seldom has been able to do. In brief, more than influence, Stanford can motivate.

Performing artists make their money not in the concert hall, but on tapes, records, and film. Professors make extra funds from textbooks and increasingly with tapes and film. The University can be the concert hall, but the performances there, its facilities, and faculty can be protected and promoted for profit and human worth.

Stanford has a great opportunity to maximize mankind's and the media's potential.

VI. CONCLUSION

The great truths remain constant. Knowledge, as Dean Pond stated, may be less important than the ability to deal with complex issues and attitudes. The professor may play a small part in the total educational process.

Perhaps accretion of knowledge comes partially through improvement of interpretations and dialogue. Satellites and cable television carry limitless opportunities for access and utilization. And, as Prof. Lyle Nelson stated, whether we like it or not, we are going to be in media more and more.

For anything meaningful to be transmitted, the true centers of knowledge must give tremendous concern for the quality of message and the medium. So that Stanford may not be used by media, it must focus—or refocus—on what it has to offer, its advantages, and make the media useful for its and mankind's potentials.

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